

## Section II. Domestic Prefabrication Historic Context

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*“It has been said, and with justification, that prefabrication is ‘all things to all people.’ To some it means a completed house with each light bulb attached in its socket, rolling off the production line. To others it signifies no more than factory-built door and window units ready for installation in traditionally built homes. While it is next to impossible to obtain a definition inclusive enough to encompass the various types and degrees of prefabrication, it is not difficult to assay the general purpose of the prefabrication industry.”<sup>1</sup>*

*A.L. Carr*

*A Practical Guide to Prefabricated Houses*

### Defining the Prefabricated House

Offered as an affordable housing option starting in the early twentieth century, prefabricated houses can be found in just about any community. Either purchased from a catalogue or dealer, new homeowners could have their dream house assembled in as little as a few days. Families could have a dream house of their own which was made possible by the industrialization of house manufacturing. How did this process evolve and what makes the prefab house significant?

The term “prefab house” has a variety of meanings. Houses produced with some type of prefabrication have existed in various forms throughout history.<sup>2</sup> This report will examine the period between 1900 through 1960, which saw tremendous growth and maturation of the prefabricated housing industry in the United States. The Prefabricated Home Manufacturers’ Institute and U.S. Department of Commerce define prefabricated houses this way:

A prefabricated home is one having walls, partitions, floors, ceilings, and/or roof composed of sections or panels varying in size which have been fabricated in a factory prior to erection on the building foundation. This is in contrast to the conventionally built home which is constructed piece by piece on the site.<sup>3</sup>

For the purposes of this report, the term “prefab” will serve as an umbrella definition for precut, panelized, sectional, and preassembled buildings, meaning that there has been some degree of factory manufacturing of the house before it arrives at the building site for quick assembly. It is important to remember that prefabricated houses were intended to be permanent, well-built dwellings that remained on a fixed site unlike trailer housing, which

could be moved with little effort. Prefab houses represent an attempt to industrialize house production to provide easily assembled and affordable dwellings to American working and middle-class populations.

Comparing prefabricated houses to other types of dwellings constructed during the period of significance helps to illustrate their role in American cultural history.

Prefab houses did share some similarities with pattern book houses, tract houses, or mobile homes. The difference between prefabricated houses and these other forms of housing was in the concept of packaging. Produced by a single company and bundled for delivery to the house site, prefab houses created a method of house production that was thoroughly industrialized.<sup>4</sup> It is useful to recognize and contrast the alternate house types available to compare with the prefabricated house.

Offered in catalogues, pattern book houses of the nineteenth century provided model plans for prospective homebuyers. Available for purchase by the middle class, pattern books of Victorian-styled houses only included architectural drawings.<sup>5</sup> Building materials, trim, and sheathing had to be purchased separately by the customer. Though these pattern book designs utilized standardized stock materials, these houses were not considered prefabricated because a single company did not carry out the production of the entire house.<sup>6</sup> The construction of pattern book houses used traditional on-site preparation of the lumber requiring a number of carpenters.<sup>7</sup>

Beginning in the 1910s and 20s, pattern books and magazines reflected the change in architectural tastes, as bungalows became a popular house type. Marketed to working- and middle-class families, pattern books published by the Radford Architectural Company and Gustav Stickley's *Craftsman Homes*, and designs appearing in popular magazines like *Ladies'*



Gunnison Homes brochure envisioning the American Dream House. (Source: Private collection).

*Home Journal*, *Craftsman*, and *Bungalow Magazine*, reached a wide audience. Mass advertised pattern book houses offered inexpensive bungalow plans to construct the house but did not include potential purchase of the building materials. In contrast, prefabricated houses marketed through the same channels by companies like Montgomery Wards, Sears, and Gordon-Van Tine, included the architectural drawings and an entire kit complete with the necessary elements to construct the house.<sup>8</sup>

Tract houses, or “spec-built” housing, also shared some similarities with prefab housing in that they borrowed the manufacturing methods of prefabrication. Emerging in the 1930s, tract houses allowed builders to use assembly-line building methods at the job site. By constructing the same or similar house on a large scale, building costs were reduced.<sup>9</sup> In the postwar period of the late 1940s and the 1950s, tract housing became a popular mode of constructing new, suburban houses. Developed by Alfred Levitt and his sons, Levittown on Long Island, New



Tract housing being constructed at Levittown. (Source: [Building Suburbia: Green Fields and Urban Growth, 1820 - 2000](#)).

York, serves as the most well known example of tract housing. Borrowing from the precut manufacturers model of standardized construction, the Levitts sought to mass-produce six versions of a Cape Cod-styled house.<sup>10</sup> Emulated in suburban developments across the country, “spec-built” housing relied on multiple construction crews using standard framing methods to build mostly Cape Cod and Ranch-styled houses. Yet, prefab houses distinguished themselves from tract housing because they arrived at the building site prepared for assembly. The bulk of production had been completed at the factory making a prefab house easy to assemble with a small crew.<sup>11</sup>

Mobile homes, or house trailers are probably the most closely allied house type to prefabricated dwellings. Developed during Depression-era of the 1930s, house trailers’ origins began with the idea that they could serve as temporary housing. Mobile homes provided a quick and inexpensive way to obtain decent housing. Assembled entirely at a factory and trucked to the building site, house trailers shared many of the same characteristics as prefab houses.<sup>12</sup> Though parallels in production methods exist between mobile homes and prefab

houses, mobile homes original purpose differs. Initially, house trailers were conceived as “mobile” and even included wheel axles since they were meant to provide temporary shelter for mobile people, such as construction workers. Trailers could be hauled from site to site as required on their own wheels. In practice, a majority of mobile homes actually remained fixed to their original sites with the wheels obscured by concrete blocks or some other foundation material. The building industry, however, classified mobile homes in a separate category from prefabricated houses. Mobile homes were built on a fixed steel chassis, whereas prefabricated houses were designed without means of independent mobility. Prefabricated houses also were placed on permanent foundations, while trailers’ foundations varied from temporary to permanent. Though it could be argued that preassembled prefabricated housing was identical to mobile homes, preassembled prefab houses were never conceived to be moveable, but instead were meant to be permanent homes.<sup>13</sup>

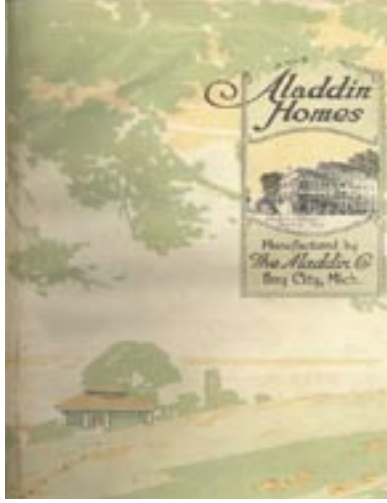


Typical 1950s house trailer. (Source: [Dream of the Factory Made House](#)).

Other types of prefabricated buildings besides houses existed throughout the twentieth century. Prefab manufacturers produced barns, commercial buildings, garages, and sheds that could be easily assembled at the building site. Some were even offered by the same companies that manufactured prefab houses, including Sears and the Aladdin Company. Summer cottages and camp buildings offered by these same companies were also prefabricated. These prefab cottages were meant to serve as temporary shelter that could be knocked-down and moved to a different sites.<sup>14</sup> Though it is important to understand and note the existence of these other similar property types, this study is concerned only with exploring the historic context of permanent, prefabricated domestic buildings.



The Aladdin Company offered other prefab buildings besides houses. (Source: Central Michigan University Aladdin Homes Archive).



1918 Aladdin Homes Catalogue.  
(Source: Central Michigan University  
Aladdin Homes Archive).

## Prefab Housing Eras

Prefabricated houses developed in two distinct periods. The *precut* house type dominated the first three decades of the twentieth century. Though there was some experimentation with the other types of prefabricated housing during this period, especially with panelized prefabs, the precut houses produced by manufacturers like Sears, the Aladdin Company, Gordon-Van Tine, Wardway, and Lewis-Liberty were the most popular between 1900 to 1930.<sup>15</sup> Precut houses started to wane in popularity during the 1930s, mainly because of the dramatic effects of the Great Depression. Some precut manufacturers had previously offered mortgages with their products. Many of these homeowners were unable to keep up with their mortgages once the depression-era took hold, causing the default rate for these mortgages to skyrocket and discouraging companies from of-

fering this type of financing in the future.<sup>16</sup>

The 1930s served as a transitional period for prefabricated housing as *panelized*, *sectional*, and *preassembled* prefabricated property types started to establish a foothold in the housing industry.<sup>17</sup> During World War II, many prefab manufacturers provided defense industry housing. This further bolstered industry improvements in materials and assembly methods.<sup>18</sup> It was not until the post-World War II period though, that these three prefabricated housing types gained prominence on the American landscape. Throughout this time, sectional and preassembled prefab housing only occupied a small market share in the prefab industry. The panelized prefabricated house was especially dominant during the period between 1940 through 1960.<sup>19</sup>

The historical trends and events that led to the creation of the twentieth century prefab industry underscore the significance of mass-produced, industrial housing in the United States. These social, cultural, and industrial developments will be explored in the following section.



A Lustron "Westchester" House built in post-World War II Louisville.



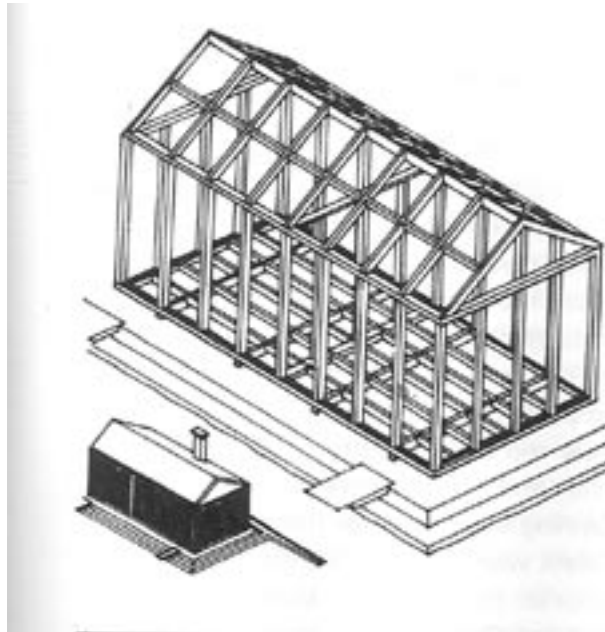
## Contributing Factors that Led to Prefabricated Houses in the United States

Experimentation with prefabricated dwellings occurred throughout the nineteenth century but on a much smaller scale than what developed in the twentieth century.

Prefabricated houses constructed of wood, canvas, or corrugated iron were generally intended to serve as temporary shelter.<sup>20</sup> Early prefabricated buildings were not produced by assembly-line methods. Prefabricated houses of the nineteenth century were modest in scale and design, serving the most basic shelter needs. Nineteenth century prefabricated housing was used mainly in areas of new settlement. Most notably, British producer Manning of London sold prefabricated cottages to colonial settlers early in the nineteenth century.<sup>21</sup>

In the United States, the 1849 Gold Rush in California necessitated immediate housing. The emergency housing situation created by the sudden influx of optimistic gold miners could not be addressed on the local scale. With labor and material shortages in the fledgling territory, prefab dwellings provided the perfect solution. Prefabricated houses constructed from around the world were sent to the area in response to the population boom.<sup>22</sup> Overall, prefabrication during this period was still on a small scale and focused on specific groups' housing needs. The benefits of mass production discovered during the Industrial Revolution had not been fully realized during the mid-nineteenth century.

By the turn of the twentieth century, the climate for mass-produced prefabricated housing improved due to advances in technology, marketing, and distribution. Assembly-line production techniques could be applied to house production by using standardized materials. Mass advertising and a growing network of transportation routes assisted in the development of the prefab house industry. Responding to housing needs created by immigration



Manning's prefab cottage that was sent to newly established British colonies to provide quick shelter. (Source: [Dream of the Factory Made House](#)).

and urbanization, and with an overarching goal of modernization, prefab houses emerged as a viable housing option for the growing American population. Several factors played a role in creating the prefabricated housing phenomenon.

## Housing Shortages

At the turn of the twentieth century, cities and towns across the United States experienced a great influx of immigrant and rural populations. The need for affordable and permanent housing became a pressing issue in American communities. Working- and middle-class families had a great desire to move away from the crowded inner city to a suburban house of their own. Crowded living conditions in tenement buildings and substandard urban housing made the outlying suburban areas attractive to prospective homeowners. Meeting the demand from this new market of potential house purchasers, prefab manufacturers advertised affordable and attractive alternatives for housing.<sup>23</sup>

In addition to urban immigration, housing shortages were also experienced in areas where there was rapid industrial development. Extractive industries like coal mining and timber production established work sites in rural settings, where housing, labor, and building materials could be in short supply. As a result of rapid industrialization, company towns were necessary to provide services to workers. As might be imagined, company towns provided a ready market for prefabricated housing.<sup>24</sup> Standard Oil, for instance, placed a one million dollar order with Sears for 192 kit houses in 1918.<sup>25</sup>

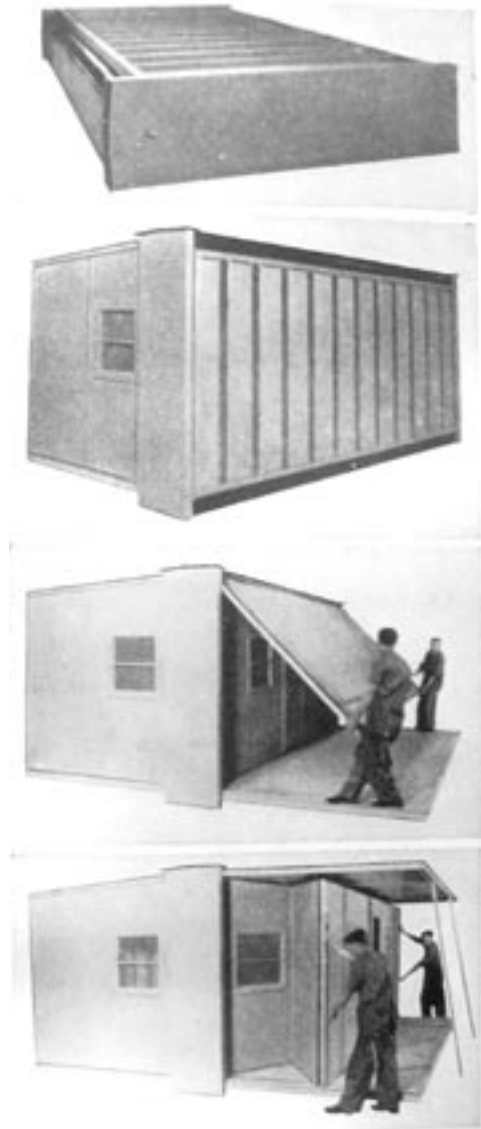
At the end of World War I, returning veterans and their families, along with the continuing influx of immigrants, created demand for new homes. Multi-generational households that existed before and during the war years had suppressed house construction. With families now earning steady wages from the improving economy, the need for the entire extended family to live under one roof diminished.<sup>26</sup> The desire of young families to move into their own houses created a housing boom by 1920. It was estimated that one to two million homes were needed to address the housing shortage.<sup>27</sup>

Established prefab manufacturers were able to provide suitable permanent housing on an efficient basis. During the 1920s, the supply of housing stock across the country increased rapidly. New suburban neighborhoods that ringed cities and towns throughout the United States filled with popular housing types such as bungalows, American Foursquares, and Colonial Revival cottages. Prefabricated housing played a major role in this era of

development. For example, Sears had its peak sales year in 1926.<sup>28</sup> The housing boom was flourishing when the stock market crashed in 1929. This event quickly brought a halt to new housing construction.<sup>29</sup>

The onslaught of the Great Depression dampened growth in the housing market for almost a decade. The majority of residential construction that occurred during this period was focused on small remodeling projects.<sup>30</sup> During this time there was a great deal of experimentation in the prefabricated housing industry to find new ways to produce economical housing options that were easy to construct. This would set the stage for a new generation of prefabricated housing that moved away from the precut method of prefabrication.<sup>31</sup> For example, Gunnison Homes emerged during the 1930s, offering panelized prefab houses.<sup>32</sup> By 1935, *The Architectural Forum* had identified 33 different prefabricated housing manufacturers in the United States poised to offer affordable mass-produced housing.<sup>33</sup>

The waning days of the Depression saw an upswing in housing construction, only to be halted by the start of World War II. With rationing of resources for the War effort, residential construction was no longer a feasible activity.<sup>34</sup> In spite of these strictures, the defense industry, spurred by the U.S. entry into World War II, created demand for worker housing. Prefab manufacturers offered an efficient and affordable solution. As a result of the 1942 Lanham Act, which provided funds for war housing, five prefab companies, including Indiana-based Gunnison Homes and National Homes, gained government contracts worth \$153 million to provide 70,000 units of prefab housing to defense industry workers.<sup>35</sup> By the end of World War II, the total amount of prefab units produced for the defense industry reached 200,000 across the United States. Though this figure accounted for just 12 percent of war housing, this period of prefab construction prepared the industry to handle the post-war production levels for housing.<sup>36</sup>



Prefabricated war housing. Packed flat for transport, these houses were simply unfolded at the site. They could be erected easily with a crew of two. (Photo: *The Prefabrication of Houses*).



With the effects of the Great Depression and World War II, the post-war period of the late 1940s witnessed a great deal of pent-up demand for new housing. Returning GIs anxious to start families provided a ready market for prefabricated housing. The National Housing Agency estimated that a minimum of five million new houses would be needed to meet the demand. Across the country, suburban neighborhoods filled with nearly indistinguishable tract and prefab housing, developed along new roads extending from urban centers. These neighborhoods separated people along economic and racial lines, creating homogenous populations in distinct residential areas.<sup>37</sup>

The increased demand for suburban housing created an attractive market for prefabricated housing manufacturers. World War II prefab production improved the industry's methods of manufacturing a diversity of materials.<sup>38</sup> In the post-war years, prefab manufacturers increased their speed in producing good quality, permanent housing to the home-buying public. Prefabricated housing manufacturers sought to capture this sizeable new segment of potential homeowners by offering an inexpensive and sturdy alternative to conventionally built housing. Companies producing prefab houses jumped to 280 in 1946, almost tripling the number of manufacturers offering prefab dwellings in 1944.<sup>39</sup>

### Affordable Housing

**I**ncreased awareness with providing decent quality and affordable housing started with the Progressive Era at the turn of the twentieth century.<sup>40</sup> The cost of labor and materials for a conventionally built house made them unattainable for many middle- and low-income families.<sup>41</sup> The introduction of mail-order houses fostered first-time homeownership for all economic and racial classes. The kit house companies offered payment plans and mortgages to populations that might not otherwise be able to purchase a house. The only requirement to purchase a catalogue house was a steady wage. Kit houses were sold directly to the homeowner from the manufacturer, avoiding the proverbial “middle-man,” (in this case a building contractor) in the construction process.<sup>42</sup>

Self-built neighborhoods emerged during the early decades of the twentieth century, propelled by the availability of kit houses. Since precut houses were designed to be do-it-yourself endeavors, even supposedly unskilled homeowners could assemble the kit. The mail-order houses allowed a homeowner to build the house at their own pace. Many owner-builders constructed their houses after work and on weekends. For African Americans, self-

built neighborhoods provided an avenue to home ownership that otherwise might not have been possible, due to racial discrimination by lending institutions. Precut houses offered by mail-order catalogues gave homeowners an affordable, more equitable housing option.<sup>43</sup>

During the decade of the 1930s, the need for providing affordable housing increased. Among the many economic hardships created by the Depression, home ownership levels were severely affected. By the mid-1930s, more than half of the American population could not afford to purchase a new house.<sup>44</sup> Several private enterprises and government agencies concentrated their efforts on studying methods for reducing housing costs through prefabrication.<sup>45</sup> The Bemis Foundation, Pierce Foundation, U.S. Forest Products Laboratories and Housing Research

Foundation at Purdue University all worked on developing prefab systems and materials that would reduce construction costs in order to make houses more affordable to the general population.<sup>46</sup> The research undertaken by these groups advanced prefabricated house production methods and materials. As a result of these improvements in prefabrication, the industry was poised to develop the affordable housing market in the 1940s.

The post-World War II housing boom greatly increased American families' ability to purchase a home of their own. The federal government encouraged homeownership by offering affordable mortgage plans with small down payments through Federal Housing Administration (FHA) loans and Veteran's Administration (VA) loans to help resolve the housing crisis.<sup>47</sup> FHA loans had been established during the New Deal under the National Housing Act of 1934 as a way to stimulate affordable housing in the private housing indus-

**Aladdin Homes**  
**"Sold By The Golden Rule"**

**The Cedars**

You can buy a complete house direct from the manufacturer, saving four profits on the lumber, millwork, hardware and labor - by the Aladdin System.

**ALADDIN Houses Are Not Portable**

**The Service ALADDIN Offers You**  
 Thousands of American families have solved their home-building problems through Aladdin service. For seventeen years this great Organization has devoted its energies, its brains and its experience to making homebuilding easier, safer and less expensive. As told on pages 10 and 11, this valuable service is yours without one cent of cost.

**The Saving ALADDIN Offers You**  
 Aladdin homes are designed to use standard sizes of materials. Standard sizes scientifically manufactured in Aladdin mills result in 18% waste or against hand-cut materials bought the usual way. Aladdin will direct its homebuilders thus saving all the middlemen's profits. This system opens the way for you to save from 25% to 40%.

**The Safety ALADDIN Offers You**  
 The Greatest Homebuilding Organization in the world; three great manufacturing plants, the highest credit rating of the commercial credit agencies; an unspotted record of square dealing with thousands of big business institutions and tens of thousands of home builders in every state—these facts assure you of the utmost safety in dealing with The Aladdin Company.

**THE ALADDIN COMPANY**  
 Bay City, Michigan    Wilmington, North Carolina    Portland, Oregon

The 1923 "Cedars" was a typical small-sized precut house sold by mail order companies. Reasonably priced precut houses gave many families the opportunity to own their own home. (Source: Central Michigan University Aladdin Homes Archive).



A page from a National Homes promotional catalogue featuring quality housing at a reasonable price. (Source: Private collection).

try. FHA loans created mortgages that extended for twenty years and allowed for payments in monthly installments with low interest rates. In order to qualify for FHA loans, houses had to meet design and engineering standards established by the Federal Housing Authority.<sup>48</sup> In the postwar years, FHA loans were again offered to foster new, affordable housing. Administered through the FHA, VA loans created by the GI Bill allowed veterans to purchase a house without a down payment.<sup>49</sup>

The prefabricated housing industry capitalized on the availability of housing loans provided by the FHA and the VA by making sure their houses qualified for these types of mortgages. The prefab industry had previously been excluded from FHA loans because the houses did not fit into conventional financing procedures. In 1947, Congress authorized the FHA to extend loans to prefabricated

housing.<sup>50</sup> Prefab manufacturers offered modest starter homes at a lower cost than speculative built or custom-built houses. Two bedroom, one bath models were a common prefab design, though larger models were also available, depending on the budget of the potential house buyer.<sup>51</sup>

## Cultural Influences

During the Progressive Era of the early-twentieth century, some reformers focused on domestic concerns, such as improving household efficiency and sanitation. The large dwellings of the Victorian Era created a complex, formalized living environment. Rooms devoted to a single function and ornate woodwork presented the housewife with daunting schedule of housekeeping, even with the aid of servants. Attitudes toward domestic life changed at the beginning of the twentieth century. Emphasis was shifting to simplifying families' lives by changing domestic spaces, which served to make the Bungalow, for example, a fashionable choice for working- and middle-class dwelling.

The design of the Bungalow utilized an open plan that provided multi-functional rooms and created an informal atmosphere with no accommodation for domestic servants. The Bungalow design was well suited for the more informal lifestyles of working- and middle-class families of the early twentieth century.<sup>52</sup>

One of the key elements to this shift in domestic living arrangements was to improve household efficiency. With an increased attention to scientific methods, domestic planners focused on the importance of making chores and duties more efficient. Numerous technological innovations brought timesaving devices into the domestic sphere to increase efficiency and modernize living spaces. For the first time, indoor plumbing, electric lighting, and appliances were incorporated into new and old houses.<sup>53</sup> Just like conventional houses, kit-house residences accommodated these modern features. Precut houses in Bungalow and American Foursquare designs popularized these modern domestic features, since they were more affordable.<sup>54</sup>

The emphasis on sanitation also grew out of the Progressive Era. Crowded city tenements had created unsanitary living conditions, drawing the attention of reformers. Stressing the need for natural light, fresh air and clean spaces, domestic planners promoted house designs that incorporated more healthy features. Architectural elements incorporated into Bungalows and American Foursquares included numerous windows, as well as open air sleeping porches, both of which reportedly fostered a healthful environment. These new modern house types departed from their Victorian counterparts by reducing the amount of ornate trim and complex domestic spaces. Simplifying decorative elements to smooth, planar surfaces, and creating open plan living spaces, aided the housewife in removing dust, thought to be unhealthy.<sup>55</sup>

The trends in domestic efficiency and sanitation continued in the post-World War II period, as designers were concerned with making the house operate with the efficiency of a machine.<sup>56</sup> The 1950s housewife could have all the modern conveniences at her fingertips. Kitchens were designed to maximize the use of the space and save steps. Mothers could watch their children while doing housework because of open plan arrangements and picture



1923 Aladdin Catalogue featuring sanitary devices and easy-to-clean elements. (Photo: Central Michigan University Aladdin Homes Archive).



National Homes featured the "Youngstown Kitchen" with their prefab house models. The new dishwasher in the kitchen made it easy for the modern housewife to keep the kitchen in order. (Source: Private collection).

windows. New appliances like dishwashers and washer and dryers appeared in the kitchen and utility room to assist the housewife with daily chores.<sup>57</sup> Prefab manufacturers like Lustron consciously designed the floor plans with these efficiencies in mind.<sup>58</sup>

After World War II, sanitation continued to influence domestic design. Easy-to-clean materials like Formica, porcelain enamel

coated steel, and stressed-skin plywood were incorporated into postwar houses. Prefab manufacturers were at the forefront of the trend by employing these materials in their house designs, often touting this as an exclusive benefit to prefab ownership. Gunnison Homes' promotional materials emphasized the ease of cleaning the house's stressed-skin plywood surfaces. Lustron Homes, made of porcelain enamel coated steel panels, advertised that their homes could be easily cleaned with soap and water on the interior and exterior.<sup>59</sup>



1950s Gunnison housewife showing how simple it was to clean stressed skin panels. (Source: Gunnison Homeowners Guide, private collection).



## The Prefab House Industry

*“There’s no revolution in home manufacturing. It’s a slow evolution of all homebuilding into the factory.”<sup>60</sup>*

*Jim Pease,*

*President of the Home Manufacturers Association*

It is important to understand both the socio-cultural and economic factors, as well as the technological advances and business operations, which fostered the development of prefabricated housing. Conventionally built houses, either custom designed or speculative, involved more labor and materials since, each structure was erected at the site.<sup>61</sup> Though building methods for traditionally built houses became more cost effective, especially after World War II, prefab dwellings still retained an advantage due to the meticulous planning, design and manufacturing before they even left the factory. An examination of the industry’s developmental influences in production, materials, design, marketing, and distribution illuminate how the prefab is distinct from traditionally constructed dwellings.

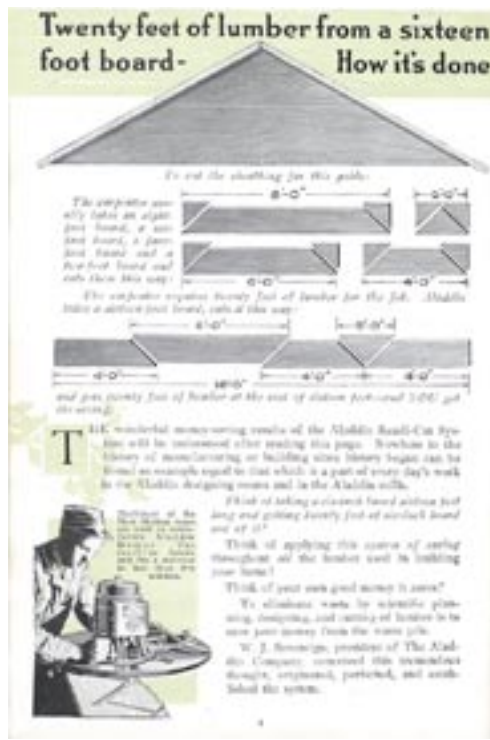
### Industrialization

One of the biggest advantages of prefabricated production was the ability to standardize building elements. Kit house producers employed standardization principles in their house designs not only to reduce costs but also, to facilitate ease of construction.<sup>62</sup> As an outcome of mass-production techniques, standardization created inexpensive building elements that could fit into any design the precut company offered. At all levels, standard materials streamlined the construction process. Plumbing and lighting fixtures were manufactured in uniform sizes to be used in any kit house. Doors and windows with exact measurements allowed for planning a variety of fenestration patterns. At the structural level, wood framing members were milled at standard dimensions that created interchangeable elements for a variety of designs. The benefit of standardization was that it reduced costs, which was



The Aladdin Company of Bay City, Michigan was the first precut manufacturer to have national appeal in the booming housing market. (Source: Central Michigan University Aladdin Homes Archive).





Precut manufacturers carefully calculated lumber cuts to minimize wasted materials and reduce costs for the customer. (Source: Central Michigan University Aladdin Archive).

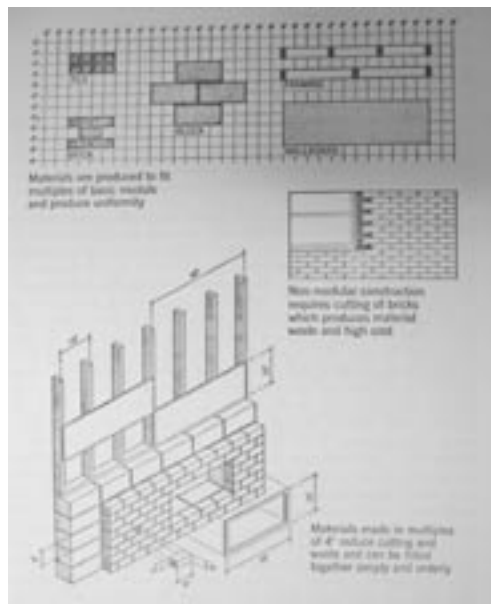


Diagram of modular coordination illustrating how different materials were manufactured in standardized dimensions to facilitate construction. (Source: [The Prefabrication of Houses](#)).

a goal of precut prefab manufacturing during the first decades of the twentieth century.<sup>63</sup>

Company architects continued to approach prefab design with a scientific methodology in the second period of industry development. Carefully calculating the size of each room, in-house architects maximized materials to prevent waste and save money. As a part of this building methodology, modular coordination played an important role in prefab houses. Developed by Albert Farwell Beamish of the Beamish Foundation, this type of design relied on modules that were in uniform sizes based on 4-inch multiples. Functioning as a type of standardization, modules, whether in the form of bricks or panels, facilitated prefab construction by creating construction units with standard dimensions. The purpose behind modular coordination was to reap cost savings by reducing on-site labor for cutting and fitting of materials.<sup>64</sup> Panelized prefab manufacturers like Gunnison and Lustron readily utilized this method of design in their houses. Gunnison relied on 4-foot by 8-foot modules for the stressed-skin panels. The Lustron panels used for exterior sheathing were 2-foot by 2-foot.

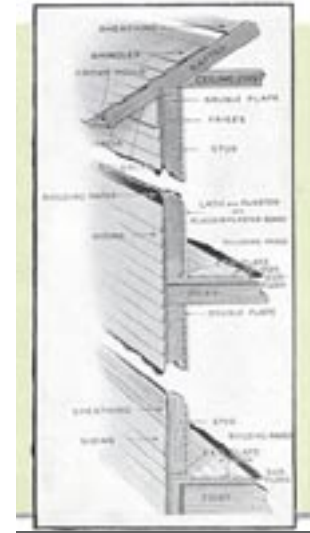
The idea of mass-producing houses represented a radical departure from conventional building methods. Taking cues from assembly-line production of automobiles, prefab companies sought to make house building cheaper and faster. Author Curt Dietz describes the advantage of assembly-line production as the “ability to produce large numbers of identical parts that can be assembled into standardized units.”<sup>65</sup> The prefab industry touted the advantages of assembly-line production because of the quality control standards in place at the factory. Each employee on the production line had a specialized job that assisted in the manufacture of prefab houses. Prefab manufacturers promised that their products were superior to conventionally constructed houses where labor was not specialized.<sup>66</sup> Though a variety of prefab systems developed

throughout the first half of the twentieth century, each method involved some type of production at a factory before the house arrived at the building site.<sup>67</sup> The numerous methods employed by prefab manufacturers will be explored in the next section.

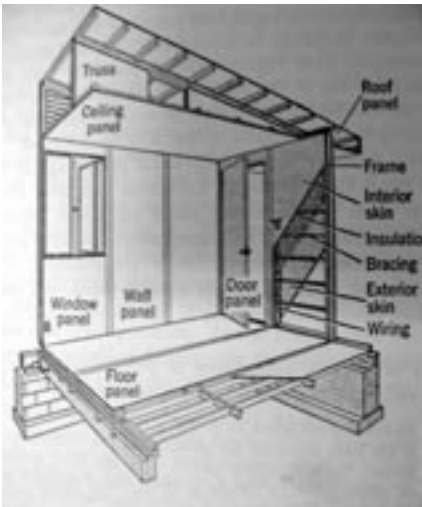
## Production Methods and Structural Systems

**P**recut house prefabrication relies on the precise cutting and numbering of all the structural framing members at the factory. Companies that utilized the precut method often would have lumber mills where the processing and packaging of the houses occurred. Lumber purchased in bulk by the manufacturer was cut into standardized dimensional studs, rafters, plates and joists at the company mill. The actual assembly of the prefabricated members occurred at the building site.<sup>68</sup> A significant number of Sears houses, for example, were milled at their Cairo, Illinois plant across the Mississippi River from Kentucky.<sup>69</sup>

Local lumber companies across the country also offered precut materials used to assemble houses. When the popularity of kit houses spread across the country, local lumber companies emulated the product idea by offering their own precut kits. Sometimes, these lumber companies actually used plans from the mail-order companies to produce their kits.<sup>70</sup>



The precut structural system was based on light timber framing techniques. Only basic carpentry skills were required to build the kit house making them easy to construct. (Source: Central Michigan University Aladdin Archive).



The panelized structural system utilized panels for walls, ceilings, and floors. (Source: [The Prefabrication of Houses](#)).

Panelized prefabrication can be broken down into three different fabrication systems: the open frame panel type, the stressed skin panel (or sandwich panel), and the solid panel type. All three types benefited from the introduction of sheet materials such as wallboard (drywall) and plywood developed in the 1930s.<sup>71</sup> Prefab companies that made panelized houses supplied four basic components in panel form: floors, walls, ceilings, and roofs. Panel sizes could range in size from 4-foot by 8-foot to entire walls of 30-foot by 8 foot, depending on the manufacturer's designs. The degree of finish material varied among prefab companies, though the walls generally were sheathed with interior and exterior materials.<sup>72</sup>



and exterior walls, though additional exterior sheathing such as weatherboard could be applied at the building site to further protect the structure.<sup>75</sup> Prefab companies that utilized this method include Gunnison, Peaseway, and National.<sup>76</sup>

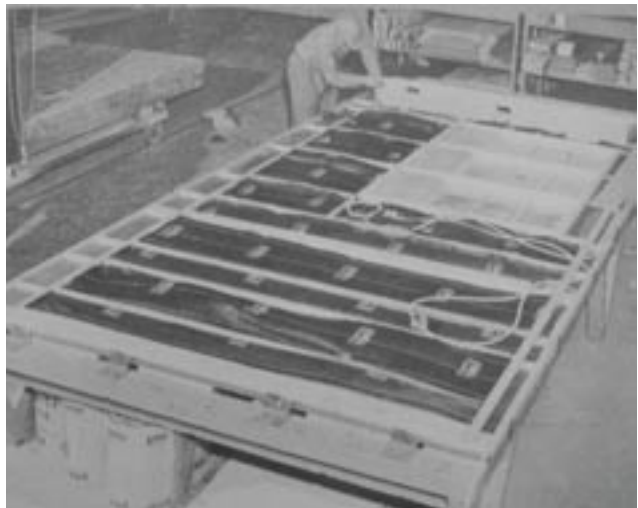
Solid panel prefab structural systems consisted of units that were made of a homogenous material like precast concrete slabs. Other solid panel types were made from laminated plywood panels or asbestos cement. This type of system was sometimes combined with other structural systems for greater reinforcement. Therefore, the solid panel acted as a sheathing material rather than a structural system. Cemesto Homes and Hayes Econocrete were companies that produced prefab houses with this method.<sup>77</sup>

Sectional assembly and preassembled prefab houses involved more than just the manufacture of the structural system, but the assembly of the complete housing units at the factory including windows, doors, trim, wiring, and plumbing. The structural systems of these prefab types generally consisted of panelized units that were assembled into larger components. Companies that offered sectional house systems manufactured room size units, which were joined at the home site. Manufactured and finished at the factory, preassembled prefab houses offered a completely finished unit when delivered to the building site. Manufacturers associated with sectional and preassembled prefab housing include Wingfoot, Reliance, and houses produced by the Tennessee Valley Authority (TVA).<sup>78</sup>

Direct right: A preassembled Wingfoot prefab house. Note the extended portion of the house at the left, this section folded in while the house was being transported to the site. (Source: [The Prefabrication of Houses](#)).



Assembling sectional prefab housing at the Reliance Factory. (Source: [The Prefabrication of Houses](#)).



Sectional and preassembled prefab houses often came complete with wiring, plumbing, and appliances. By completely preparing the house before it arrived at the site, the prefab was ready for immediate occupation. (Source: [The Prefabrication of Houses](#)).





## Materials

The vast majority of prefabs were constructed with wood using either dimensional precut lumber or plywood. In 1962, for example, 85 percent of prefab manufacturers used wood as a structural material. The availability of lumber and the ease of production made it an attractive material for the prefab industry in all eras. Kit house manufacturers utilized dimensional lumber as the principal material in their precut house models.<sup>79</sup>

The development of plywood by the U.S. Forest Products Laboratory advanced prefab house construction during the 1930s. Plywood consists of several thin layers of wood that when glued together form a large sheet. These plywood sheets had the advantage of



Using plywood to produce panels led to many advances in the prefabrication industry because it led to quicker assembly at the house site. (Source: [The Prefabrication of Houses](#)).

being light and strong, while also durable and inexpensive. Plywood could easily be mass-produced in standardized 4-foot by 8-foot sheets.<sup>80</sup> The large sheets of plywood enabled prefab manufacturers to develop panelized structural systems. The modular plywood sheets allowed for quicker construction because of the large surface area. In particular, prefab manufacturers created a system of “stressed skin” using plywood. The ability to construct an inexpensive standardized unit with interior and exterior walls in place provided an advantage to panelized prefabrication. Panelized producers could shorten the construction time at the house site since the wall units were already finished.<sup>81</sup>

Though steel structural systems became popular for commercial construction early in the twentieth century, most prefab house manufacturers chose not to adopt the material. Several inherent disadvantages reduced the appeal of steel for prefab housing. Steel was prone to heat loss, condensation, rust, and sound transmission. The high strength of steel made it suitable for skyscrapers where the structural load of the building was immense. For small one- to two-story houses, the use of steel did not maximize the material’s full strength, therefore

making it excessive for such small structures.<sup>82</sup> Additionally, the public's perception of this industrialized material did not initially meet with overwhelming appeal.<sup>83</sup>

Steel did have a low cost, which made it attractive to some manufacturers. By the 1920s, there was experimentation with steel as the primary structural material for smaller commercial buildings such as hamburger stands and gas stations. Porcelain-enameled steel panels were developed as a way to

protect the steel from rust. Coating the steel with a porcelain-enamel finish provided a durable, attractive panel. Porcelain-enamel had been successfully used for refrigerators, washing machines, and bath tubs. Applying the coating to steel allowed for a variety of colors to be used as an exterior finish. A few prefab manufacturers did incorporate steel in their houses either as structural framing members or porcelain-enameled steel panels. Lustron houses were probably the best-known prefabricated housing to utilize porcelain-enamel steel panels in their production.<sup>84</sup>

The use of concrete in prefabs met with limited success. Sears actually featured house models constructed with concrete block. A machine could be purchased through the catalogue to fabricate the concrete blocks on the house site. Offered in different textures and dressings, concrete blocks replicated stone masonry.<sup>85</sup> Concrete block made from Sears block machine was most often utilized on the foundation walls of many houses, prefab and conventionally built, throughout the early-to-mid-twentieth century.<sup>86</sup>



All of the parts needed to assemble a Lustron house are shown above. The porcelain-enameled steel panels and steel frame fit together to make the building envelope. (Source: [The Lustron Home: The History of a Postwar Prefabricated Housing Experiment](#)).



Sears House model no. 52 featured concrete block as its principal construction material. (Source: [Houses by Mail](#)).



Precut customers could produce their own foundation or cladding material by using the Sears concrete block machine which formed masonry units with a variety of textures. (Source: [Cheap, Quick, and Easy](#)).





Putting the final prefabricated element on the concrete house manufactured by the Ibec Corporation. This prefab company used precast concrete panels for its houses. (Source: [A Practical Guide to Prefabricated Houses](#)).

Some prefab manufacturers experimented with precast concrete either in site-poured forms or panels. The disadvantage of prefab concrete houses was the high delivery costs due to the weight of the material. The most cost-effective method for prefabricated concrete dwellings occurred only if the construction was near the production site. Precast concrete prefabs, though modern in appearance, did not appeal to general public tastes as an acceptable domestic material.

Construction of prefabricated houses reflected both the need to fit into traditional building methods and the desire to showcase new and modern materials. The interest in using precut lumber systems relied on the public familiarity with the construction method for light timber framing. By precutting the dimensioned lumber at the factory, prefab manufacturers created a modern and efficient production method. The precut house then could be assembled by anyone with a fundamental knowledge of carpentry.<sup>87</sup> Alternatively, the use of modern materials to construct prefab houses underscored the idea that the twentieth century dwelling should be an industrialized product. By using materials like plywood, steel, and precast concrete, the prefab house could symbolize a modern domestic form for the new century.<sup>88</sup>

### Architectural Style and Design

Prefab manufacturers generally maintained in-house architectural and engineering staff to design their houses. The focus was not only to create attractive, marketable houses but also to reduce waste of materials and labor-costs through efficient design. Architects had to be knowledgeable about production methods used to create the prefab house, so that they could plan to maximize materials and streamline assembly methods with their designs. By using architects to design the houses, prefab house manufacturers subtly communicated to the consumer that the prefab house was of comparable quality to the conventionally constructed home.<sup>89</sup>

Mail-order catalogues from the early twentieth century are filled with precut houses in Bungalow and American Four Square styles. The in-house architectural staff for mail-order companies usually chose to emulate popular designs rather than create new ones.<sup>90</sup> As a consequence of this replication, many kit houses were indistinguishable from their convention-



Variety of precut models featuring popular architectural styles offered by the Aladdin Company through several decades. (Source: Central Michigan University Aladdin Homes Archive).

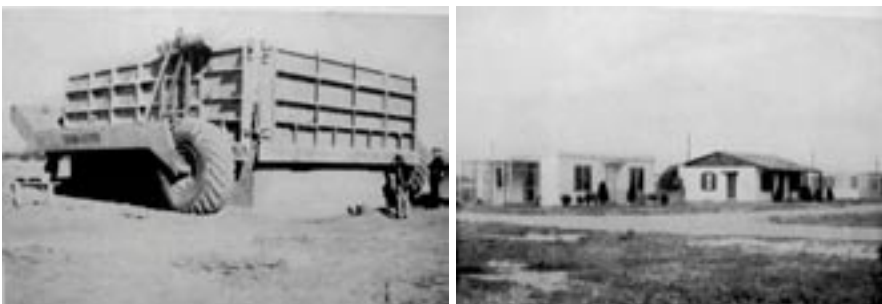
ally built neighbors. Other fashionable styles that became popular for precut prefabricated houses included the revival styles in Colonial, Tudor, Mediterranean, and Georgian motifs, as well as the Prairie style. Again, these styles had become favored during early decades of the twentieth century, so the kit-house manufacturers consciously appealed to market tastes by offering the most popular designs.

During the transitional period of the 1930s, architects in the industry felt that prefabs should reflect a modern design since these houses were products of industrialization. Driven by the availability of modern materials like steel and precast concrete, several companies offered houses with modernistic forms. These dwellings featured flat roofs, minimal ornamentation and open floor plans. The American Houses Company under the direction of Princeton-trained architect, Robert W. McLaughlin, Jr. produced the steel “Motohome.” General Houses, founded by Harvard-trained architect Howard T. Fisher, also developed modern styled steel prefabs.<sup>91</sup>



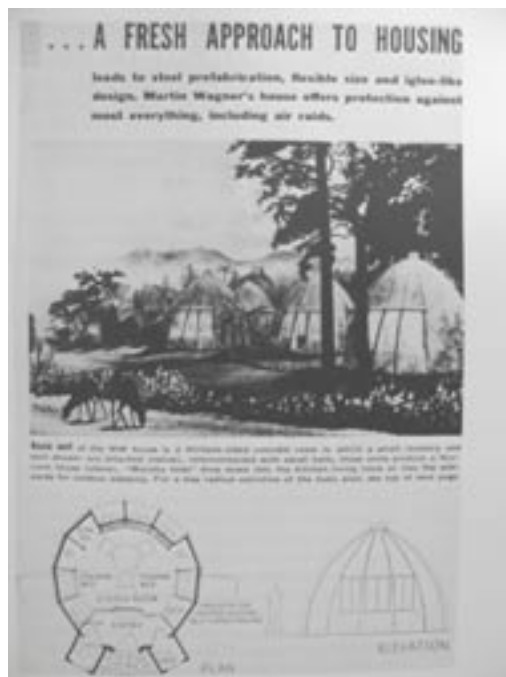
Above: The “Motohome” and a General Houses steel prefab. Thoroughly modern in style, these houses were not readily embraced by consumers. (Source: The Prefabrication of Houses).

Left: The Tournalayer machine produced entirely precast prefab houses. A development of LeTourneau homes is pictured. Notice that one house already has a gable roof added to it, showing the reluctance of homeowners to accept modern architectural forms. (Source: A Practical Guide to Prefabricated Houses).





Above: Buckminster Fuller's Dymaxion House made of aluminum. Despite public interest in the innovative project, Fuller's prefab never was mass-produced. (Source: [The Prefabrication of Houses](#)).



Above: Taking prefabricated housing to the extreme. This company's product did not catch the public's imagination. (Source: [Dream of the Factory Made House](#)).

Right: The Cemesto House produced by the Celotex Corporation used solid panels to enclose the building envelope. (Source: [Historic Residential Suburbs: Guidelines for Evaluation and Documentation for the National Register of Historic Places](#)).

LeTourneau Homes based in Texas produced an entirely precast modern home from the "Tournalayer" machine.<sup>92</sup> The Lustron house, an all steel prefab house, also typified a modern aesthetic with its use of industrial materials. Though the floor plans were based on a bungalow, Lustrons were thoroughly modern in appearance.<sup>93</sup>

Architects and designers also experimented with avant-garde or non-traditional designs. The most notable unorthodox prefab design was Buckminster Fuller's Dymaxion House. He designed the prototype for the house in 1927 employing a lightweight aluminum structure suspended from a central mast. The round form of the house radically departed from the traditional concept of domestic dwelling.<sup>94</sup> Although it received wide publicity, the Dymaxion House and Fuller's later Wichita House (based on a similar design) never became more than a prototype model.<sup>95</sup>

Prefab manufacturers hoped to gain consumer acceptance for their products in the post-World War II period. As a consequence of the World War II prefab defense worker housing and the manufactured mobile home, prefab dwellings had developed a stigma that they were cheaply constructed, unattractive, and temporary. Additionally, some of the modern materials used in prefab production met with public doubt. For example, the use of stressed





Panelized prefab manufacturers like Gunnison (left) and Peaseway (right) offered houses in traditional styles with Colonial Revival and Cape Cod designs. (Source: [A Practical Guide to Prefabricated Houses](#)).

skin plywood panels for interior and exterior sheathing caused concern that the material would not be durable.<sup>96</sup> Prefab manufacturers in the postwar period of the 1940s and 1950s consciously sought to overcome the negative public attitudes toward these house types. Most prefabs during this time appealed to traditional design tastes and materials, as a result.<sup>97</sup>

Though experimentation with prefab house styles provided some interesting models, the market demand for traditionally styled dwellings dictated the designs of prefab models.<sup>98</sup> Most prefab manufacturers in the post-World War II period produced single-story Cape Cod or ranch styles.<sup>99</sup> Even the more strictly modern styles were abandoned in favor of familiar domestic forms.<sup>100</sup> Just as precut houses from the early twentieth century assimilated with conventionally built dwellings, mid-century prefab houses became virtually indistinguishable from tract housing. Some prefab houses not only employed traditional styles, but also the same materials used for conventional dwellings. The only difference was that the prefab was constructed in a factory for a more economical cost.<sup>101</sup>

Flexibility in design and production methods as a result of using standardized parts allowed for prefabs to be customized. Kit house producers encouraged potential buyers to design the house to their tastes. This resulted in numerous alterations to the original designs in the mail-order catalogues. Floor plans could be reversed, fenestration rearranged, dormers added, rooflines altered and even blended designs of two houses. The varying degree of customization for kit houses created individually designed dwellings despite standardized methods.<sup>102</sup>



Aladdin, like many precut manufacturers offered several special features to add to their houses. (Source: Central Michigan University Aladdin Homes Archive).





Above: National Homes featured many different options to individualize their prefab houses. (Source: Private collection).

Panelized prefab houses also offered customization in design. False gables, long shutters, and special entrance details could be added to the basic house design for an extra cost.<sup>103</sup> For example, Gunnison Homes included numerous add-ons and architectural elements to allow for individual taste.<sup>104</sup>

Panelized houses like Gunnison Homes also featured flexibility of design even after



construction. The panels could be snapped out of place and rearranged to suit a property owner's whim. This meant that the arrangement of windows and doors could reportedly easily be changed, if desired. Prefab manufacturers advertised this as an advantage over conventionally constructed houses, which would require costly renovations to achieve the same results.<sup>105</sup>



Prefab manufacturers consciously designed their houses to address popular architectural styles of the period. Prefab companies had a keen interest in producing houses that would be attractive to potential buyers and would increase company profits. Some manufacturers did, however, experiment with unorthodox designs and non-traditional materials like concrete and steel. Predictably, given that the idea of a factory produced house seemed foreign, these houses did not have the mass appeal of the more conventional styles. The motivation for emulating common styles continued into the postwar period when prefab manufacturers were concerned with improving the image of their houses.<sup>106</sup>

Some Gunnison additional features included the screened porch with removable panels (top) and the "Wind-O-Wing" that was a room extension (bottom).

## Marketing

With the advent of rural free delivery mail service in 1896, prospective customers could be reached nationwide.

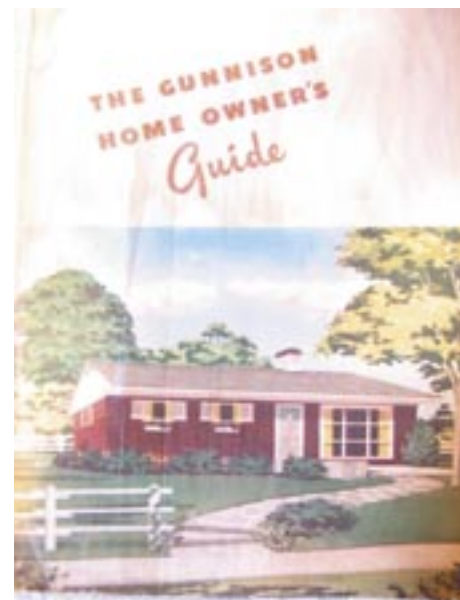
In general, initial marketing of prefab houses was accomplished through mass advertising in magazine ads or through self-published catalogues. Companies like Sears and Montgomery Ward already had experience with marketing through catalogues, which put information about products directly into the customer's hands. Mail-order prefab house purveyors published catalogues on a yearly basis, updating house models to refresh the inventory. Sometimes, the models were renamed, while other house plans would be discontinued.<sup>107</sup>

The marketing technique of catalogues continued as the industry changed from precut prefabs to panelized, sectional, and preassembled prefabricated houses. For example, Gunnison Homes and National Homes both produced color catalogues and informational brochures showcasing the variety of plans offered by the companies. Trade journals like *The Architectural Forum* and *Fortune Magazine* also featured articles about prefabs to targeted groups. Overall, catalogues and brochures were the most direct way to get information to the general public about the availability and cost benefits of prefab houses.<sup>108</sup>

An alternate method to educating the public about the advantages of prefabricated housing came through exhibits. Coming at a time when prefabricated housing was transitioning from precut to panelized, sectional, and preassembled production methods, the 1933 Century of Progress World's Fair in Chicago featured an exhibit for the "House of Tomorrow." The Fair offered an opportunity to experiment with new materials and educate fairgoers about new domestic possibilities. This was the first organized public exhibition for prefabricated houses showcasing modern materials and panelized models.<sup>109</sup> Not all of the prototypes were prefabricated, but there were three steel prefab houses from General Houses, Armco-Ferro



Aladdin advertised in popular magazines of the day as well as distributing their own catalogues to reach potential precut house customers. (Source: Central Michigan University Aladdin Homes Archive).



Panelized prefab manufacturers also relied on print media to advertise their products. Gunnison sought to entice prospective homebuyers with its catalogue. (Source: Private collection).



Enamel House, and Stran-Steel Corporation as well as Rostone Corporation's precast synthetic stone house on display.<sup>110</sup> The designs of these prefab houses were quite modern with flat roofs, steel windows, and minimal ornamentation. The exhibition organizers hoped to imprint the possibilities of modern prefabricated houses into the public consciousness. Unfortunately, the World's Fair exhibit did not meet with the anticipated public enthusiasm, as consumer preference still favored precut houses using traditional styles and materials.<sup>111</sup>



The Armco-Ferro House from the 1933 World's Fair exhibit "The Houses of Tomorrow," as it stands today. The house is being preserved by the National Park Service at the Indiana Dunes National Lake Shore. (Source: Historic American Buildings Survey. Photographer: Jack Boucher).

Prefab manufacturers also sought ways to market their houses through dealers. This allowed for face-to-face salesmanship for the products. Some precut producers established sales offices to assist the purchaser with assembling the house. For example, Sears opened regional offices across the country. These offices functioned to assist the homebuyer with construction details after the house had been purchased.<sup>112</sup>

In the 1940s, Foster Gunnison, founder of Gunnison Homes, instituted the dealer method for marketing prefab houses.<sup>113</sup> The dealer served as the point of purchase for the prefab house as well as the building contractor and mortgage agent.<sup>114</sup> This method offered one-stop shopping for the consumer, making the purchase of the prefab even more efficient. Often times the dealer had a model house or display house available for the prospective house buyer to tour. The model house allowed the dealer to highlight the numerous features and advantages to prefab house ownership. Model houses also gave the potential homebuyer the opportunity to inspect the finished product in detail. The customer could also ask questions and request changes directly to the dealer instead of waiting for an answer from the company's headquarters.<sup>115</sup>

In some cases, prefab manufacturers in the post-World War II period marketed their products directly to land developers involved in speculative real estate. The developer could purchase a quantity of prefab houses and construct them on subdivided land.<sup>116</sup> Contractors had the advantage of being able to reduce costs by coordinating the construction process from the foundation to the sale of the house. Prefab manufacturers benefited from this method of sales because they could anticipate large orders, which reduced production costs.

In areas where housing shortages were acute, a developer could construct prefabs at a faster rate for less expense than conventionally built houses.<sup>117</sup>

## Distribution

In the early-twentieth century, precut house companies utilized the extensive network of railroads that reached across the United States to ship their products. Taking one to two railcars each precut house package was delivered to the rail station nearest the house site.<sup>118</sup> The purchaser was charged with the responsibility of getting the building materials to the site. Oftentimes, the homeowner brought a vehicle or horse and cart to the delivery point to carry the materials to the house site. While railroads had extended coverage across the United States, they were limited in delivery points. As a result of this, prefab houses manufactured during this period were often located near railroad tracks, especially since hauling the unloaded kit house a great distance by horse and cart or some alternate vehicle could be a formidable task for the purchaser.<sup>119</sup>

As the highway system became increasingly developed by the mid-twentieth century, truck transport emerged as an acceptable solution for delivering prefab houses. Trucks could carry the prefab package from the factory directly to the building site. Companies had specially designed trucks that organized the house parts for systematic unloading at the building site. The issue of distribution cost, however, kept truck delivery within a 300-mile radius from the factory site. This accounts for the variety of regional prefab manufacturers across the country. Unlike kit houses from the earlier era that could be found dispersed throughout the nation, mid-century prefabs, especially from the smaller manufacturers, were likely to be found in areas within range of the manufacturing plant.<sup>120</sup>



Railroad cars were used to ship precut houses across the nation. The extensive network of railroads provided a broad distribution area for prefab manufacturers. (Source: Central Michigan University Aladdin Homes Archive).



The improvement of highways in the post-World War II era gave prefab manufacturers direct routes to customers. The prefab house could be delivered directly to the building site. (Source: [The Prefabrication of Houses](#)).

## Prefabricated Property Types

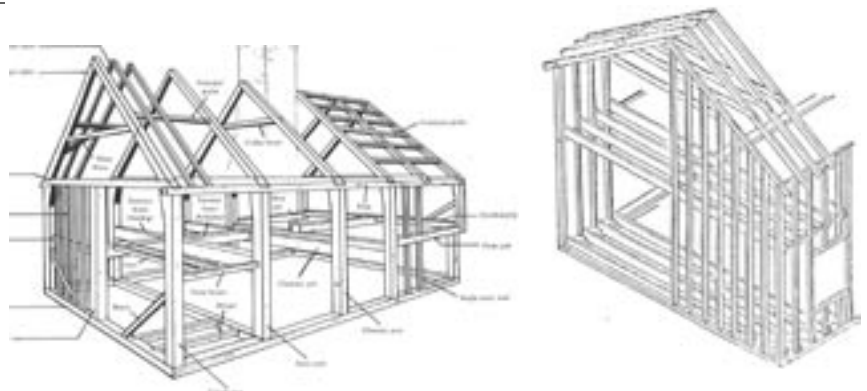
With an understanding of the historical, cultural, and industrial processes that contributed to the development of prefabricated houses during the twentieth century, a closer examination of the principal property types associated with this domestic architectural phenomenon is required. The major property types for prefabricated housing include precut, panelized, sectional, and preassembled houses. The following sections briefly describe the development of each type, provide examples of companies associated with each type, and gives suggestions for identification of prefab property types in the field. Since there are two distinct periods of prefabrication—the early twentieth century precut houses and the mid-century panelized, sectional, and preassembled prefabs—the identification sections will follow at the end of the text that describes the property types associated with these two periods.

### Brief History of Precut Houses

The invention of the balloon-frame structural system set the stage for precut house development. Developed in Chicago in 1833, the balloon-frame system utilized 2-inch by 4-inch light-weight, dimensional lumber for the building structure. Each of the light timber balloon-frame studs carried the building load and extended two stories in height. This construction method is sometimes referred to as a “stick-built” structural system. Benefiting from the introduction of manufactured nails and the increasing number of sawmills for timber processing, balloon-framing offered an alternative to traditional building methods like post-and-beam construction and log construction. Balloon-frame buildings

Left: Diagram showing braced timber framing used to construct houses prior to the wholesale adoption of balloon framing.

Right: Illustration of balloon framing. Note how the 2' x 4' light studs extend to the second story.  
(Source for both: [America's Favorite Homes](#)).



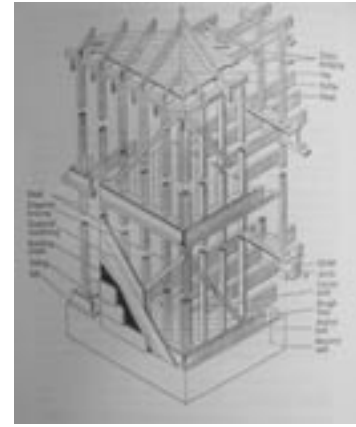
facilitated construction because it required less intensive labor than traditional carpentry methods.<sup>121</sup>

The balloon-framing system was modified by the beginning of the twentieth century and became known as “platform” or “western” framing. Platform frame systems used the same light timber, dimensional studs for the overall structure. The key change to platform framing was that the studs only extended one floor. If a second story was needed, an independent system of framing studs was placed on the platform between the first and second story. Precut manufacturers enlisted the platform framing method for their kit houses.<sup>122</sup>

Precut manufacturers use of the steam-powered saw also greatly enhanced the ability of mills to efficiently cut dimensional lumber in large quantities. Power tools were not widely available at this time, so on-site carpenters had to hand saw framing elements. When lumber cut at mills could be delivered to the site in uniform sizes, it greatly reduced the labor needed at the building site.<sup>123</sup>

Before the introduction of the precut system, conventionally built houses had to be constructed piece by piece at the building site. Even with the introduction of balloon and platform light timber framing, the process of building a house was very labor-intensive. Conventional construction methods involved cutting, nailing, and finishing each stud, joist, rafter on-site by hand craft production. Cutting individual pieces of lumber at the site created wasted materials from bad cuts, odd ends, and sawdust. The amount of wasted lumber was estimated to be at least 20 percent.<sup>124</sup> Houses constructed by conventional methods also required large crews of carpenters.<sup>125</sup>

Within the prefabrication industry, precut houses were the first major type to develop in the early twentieth century. Precut manufacturers incorporated an assembly-line method of production by cutting the lumber at the factory. The advantage of the precut method, claimed by the kit house manufacturers, was the reduction of wasted lumber and labor. This meticulous attention to eliminating wasted lumber was touted in the catalogues as a cost savings feature of a precut house. The precutting of the lumber saved labor costs at the build-



Above: Diagram of platform framing, which used the same light timber as balloon framing. The difference is that the studs only extend one floor. (Source: [America's Favorite Homes](#)).



One of Aladdin's manufacturing facilities. Precut houses were produced on an assembly-line with each worker assigned to a specific task in the manufacturing process. (Source: Central Michigan University Aladdin Homes Archive).

Right: Precut manufacturer advertised that the advantage of their prefab houses was the cost savings from reduced waste in materials. (Source: Central Michigan University Aladdin Homes Archive).

ing site since the lumber was already at the desired length to begin construction. Additionally, the volume of houses produced through mass production methods allowed companies to purchase materials at a reduced cost. This savings was theoretically passed on to the customer by selling the houses at lower prices than conventionally built dwellings. Precut houses were promoted as a quicker and cheaper way to build a house, because the lumber had already been processed and was ready to use.<sup>126</sup>



Above: The "Bluebird" was one of the modest-sized pre-cut houses offered by Aladdin. Note that there were three different plans but all have the same exterior dimensions. (Source: Central Michigan University Aladdin Homes Archive).

or stone could easily be applied to the framed kit house. Precut houses also did not include foundation materials in the kit. The homeowner had to prepare the foundation before the house package arrived at the site. Foundation materials varied from stone to concrete block, or brick.<sup>127</sup> In some cases, pre-cut home owners used the Sears block machine to construct concrete building foundations.

Marketing the prefabricated house of the early twentieth century primarily took place in mail-order catalogues. The enactment of the federal Rural Free Delivery Act in 1896 allowed for mass-distribution of catalogues through the postal service.<sup>128</sup> Designs were also featured

in popular magazines of the day like *The Ladies' Home Journal* and *The Saturday Evening Post*. Some manufacturers eventually established regional sales offices to market the houses to potential homebuyers.<sup>129</sup>

Distribution of precut houses started with the network of rail lines across the country. The packaged houses could be shipped anywhere in the country by rail from the factory. Kit houses were loaded on rail cars and delivered to the new owners for a reasonable shipping cost. In some cases, owners were able to have the train stop near the building site so that the materials could be unloaded. Generally though, the house materials were delivered at the train station and it was up to the owner to get the materials to the site.<sup>130</sup>

Based on popular designs of the day, precut houses can be somewhat difficult to distinguish from conventionally built neighbors. The precut era spanned several decades, so no one distinguishing style is associated with precut houses. Architecturally, kit houses emulated the popular designs of the period ranging from Bungalows, American Foursquares, Colonial Revival, Tudor Revival, and Minimal Traditional styles, which could all be found among pre-cut manufacturer's catalogue pages.<sup>131</sup>

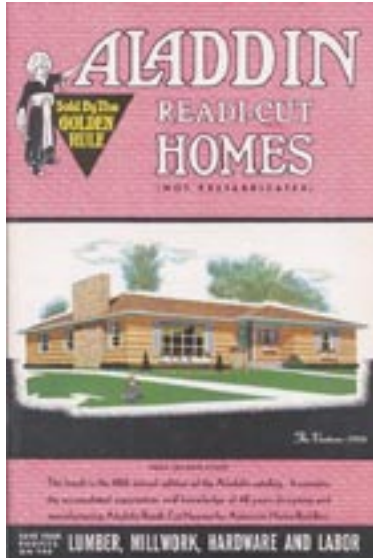
## Principal Precut Manufacturers

**T**he term "Sears House" is often used generically to describe kit houses or precut type houses. This is not entirely accurate since a variety of manufacturers produced precut houses. Sears is certainly the mail-order manufacturer with the highest profile, but not necessarily the most enduring. For instance, Aladdin Homes were produced and available until approximately 1981.<sup>132</sup>

It is not unusual to find similar precut house models offered by different mail-order companies, since they often copied plans. Local lumber companies also offered precut houses. These local lumber companies and builders would buy a single plan and duplicate it with their own materials.<sup>133</sup> As might be imagined, this makes positive identification of the specific precut house manufacturer somewhat difficult.

The milling and cutting of lumber at a factory, along with standardized plans and designs, is the unifying characteristic of precut kit houses. Until World War II, precut houses dominated the prefab industry with 250,000 homes constructed by 1943.<sup>134</sup> Examples of precut house companies include Sears, Aladdin, Wardway, Gordon-Van Tine, Lewis/Liberty,





Above: Aladdin remained successful into the mid-century by offering modern Ranch house designs. This is the 1954 catalogue. (Source: Central Michigan University Aladdin Homes Archive).

and Sterling. The following paragraphs highlight the major precut manufacturers during the twentieth century.

### Aladdin Company, Bay City, Michigan 1906 – 1981

Brothers William and Otto Sovereign of Bay City, Michigan founded the Aladdin Company in 1906. Bay City had an established lumber and ship building industry in place by the time the Sovereign brothers created their company. William and Otto Sovereign were said to have been inspired by a Bay City mail-order, precut boat company.<sup>135</sup> Aladdin initially sold precut “knock-down” summer cottages. By 1911, Aladdin offered 41 different types of permanent prefab houses in Craftsman and Bungalow styles.<sup>136</sup> Using materials supplied by both Lewis Manufacturing and International Mill and Timber of Bay City, Aladdin created the “readi-cut” system. By 1917, the company was selling 3,000 homes a year on a cash-only basis. The success of the company was reflected in the opening of new manufacturing plants in Oregon, North Carolina, Mississippi, and Canada. The Aladdin Company continued to expand their line of prefabricated houses through the boom years of the 1920s.<sup>137</sup> The Depression and World War II slowed sales considerably to just a few hundred units per year. In the postwar ear of the 1950s, Aladdin regained sales by offering precut models in the popular Ranch style. Despite this initial upswing, the decades of the 1960s and 1970s, Aladdin saw a dramatic decrease in house sales. The company’s operations ceased in 1981 after selling about 100,000 homes throughout the United States, Canada, England, and Africa.<sup>138</sup>



Above: The Lewis-Liberty Company offered precut houses in familiar styles. (Source: [America's Favorite Homes](#)).

### Lewis-Liberty, Bay City Michigan 1913 - 1973

Lewis Manufacturing Company began producing their own line of homes in 1913, using some of the designs they had created for the Aladdin Company.<sup>139</sup> The company president Miss Adna G. Lewis started out working as a bookkeeper for a lumber mill. She expanded the company’s operations from precutting lumber for other companies like Aladdin to offering Lewis Manufacturing Company’s own line of precut designs in 1914. Catalogues under the company name

“Lewis-Built Homes” featured over one hundred prefab designs in the “Easy Built” line including bungalow and cottage styles.<sup>140</sup> By the 1920s, the company introduced the less-expensive “Liberty Homes” product line. The company survived the housing downturn of the Depression and World War II producing precut houses into the 1970s. Lewis-Liberty went bankrupt in 1973, after selling about 60,000 homes.<sup>141</sup>

### Sterling, Bay City Michigan 1915 - 1975

Scant information is available for this Michigan based company. Sterling intermingled operations with both Aladdin and Lewis-Liberty over the course of its existence. In 1915, International Mill and Timber, which previously produced precut materials for the Aladdin Company introduced their own designs under the name Sterling Homes. Bay City Historical Society Researcher, Dale Wolicki recounts a series of difficulties that Sterling faced. “The Sterling plant was destroyed by fire in 1917; the company went into bankruptcy post World War I and was purchased in 1920 by a local lumber dealer, Leopold Kantzler. The facilities were again destroyed by fire in 1925, and after rebuilding, Kantzler took the name “Liberty Homes” for the manufactured housing division.”<sup>142</sup> Prefab house designs offered by the company included Bungalows, Colonial Revival, and Ranch styles, reflecting the fashionable tastes through time. Sterling’s last catalogue was published in 1971 and officially ceased operations in 1975.<sup>143</sup> When Sterling closed, the company had sold about 35,000 homes nationwide.<sup>144</sup>



Above: Sterling Homes had a nation-wide distribution, yet little is known about the types of houses the company produced. (Source: [America's Favorite Homes](#)).

### Gordon-Van Tine, Davenport, Iowa 1907-46

Gordon-Van Tine Company initially began operations as wholesale building-materials supplier U.N. Roberts Company in 1865. In 1906, the U.N. Roberts Company merged with another firm to create the Gordon-Van Tine lumber company for direct sales of millwork to the customer.<sup>145</sup> During these early years, Gordon-Van Tine supplied building materials to other mail-order companies such as Sears.<sup>146</sup> Gordon-Van Tine introduced its “Ready-Cut” precut home line in 1910 through the company’s own mail-order catalogue. The business proved to be a success and by 1920, Gordon-Van Tine operated mills in Iowa, Washington, Missouri, and Mississippi. The widely dispersed geographic locations of the mills enhanced



Above: A Gordon-Van Tine Company catalogue showing one of the many precut houses offered. (Source: [America's Favorite Homes](#)).

Right: One of Gordon-Van Tine's precut bungalows. Note that it is the same house as Wardway's "Buena-Vista" bungalow pictured at the bottom of this page. (Source: [117 House Designs of the Twenties](#)).

Gordon-Van Tine's ability to offer prefabricated houses across the nation. Typical of the precut prefabricators, Gordon-Van Tine's house designs reflected the popular architectural styles of the time by featuring Bungalows and American Foursquares.<sup>147</sup> Gordon-Van Tine also offered mortgages on a limited basis from 1927 to 1931. Though the company survived the Depression, it ceased operations in 1945. Exact sales figures for Gordon-Van Tine have not been determined, but the company did have a national presence.<sup>148</sup>



Above: Montgomery Ward Company's "Wardway Homes" sought to compete with its rival Sears. (Source: [America's Favorite Homes](#)).

Far right: Wardway's "Buena-Vista" bungalow is the exact same house as Gordon-Van Tine's bungalow pictured above. This illustrates that Wardway occasionally used other precut manufacturers designs. (Source: [Wardway Homes, Bungalows, and Cottages, 1925](#)).

### Wardway Homes, (Montgomery Ward) Chicago Illinois 1910-31

The Montgomery Ward Company first introduced house plans in 1910 without supplying building materials. Wards apparently never owned or operated housing production facilities, but instead contracted with mills in Missouri, Iowa, Washington, Mississippi, and Louisiana.<sup>149</sup> Beginning in 1917, Gordon-Van Tine provided the materials for homes marketed by Montgomery Ward in their pattern book catalogues, though not as a single package. It was not until 1921, when Gordon-Van Tine partnered with Montgomery Ward to create a mail-order housing operation that Ward offered both precut house plans and materials in a single package. Like Sears, Montgomery Ward offered mortgage financing with the company's kit houses.<sup>150</sup> The brand name "Wardway Homes" was used from 1922 until 1931, featuring the "ready-cut" system. Wardway Homes were identical to Gordon-Van Tine homes from corresponding years except that the names were different and Montgomery Ward's houses were more expensive. Wardway Homes did not survive the Depression era, closing in 1931. Exact sales figure have not been determined, though, the company did have nationwide distribution.<sup>151</sup>



## Sears, Roebuck and Company, Chicago Illinois 1908-51

Established in 1886, Sears started as a mail-order catalogue company for house wares, clothing, tools, and building supplies. The company entered the mail-order house business in 1908, offering a “Modern Homes” catalogue with 40 different house designs. The price included plans and most building materials.<sup>152</sup> Gordon-Van Tine provided materials initially, but with the success of the catalogue sales Sears began operating its own lumber mills. Sears purchased its first lumber mill in Mansfield, Louisiana in 1909, and a second mill at Cairo, Illinois in 1911 (across the Mississippi River from Wickliffe, Kentucky, in the Purchase region). By 1912, Sears purchased a millwork plant in Norwood, Ohio.<sup>153</sup> In 1916, Sears began marketing precut houses coupled with mortgages in hopes of attracting customers who did not have the cash to purchase Aladdin or Gordon-Van Tine precut homes. Sears discontinued mortgage financing in 1933 after experiencing great financial losses due to numerous foreclosures from kit house customers. Sears continued to market precut homes until 1940, but sales dropped precipitously. Sears sold an estimated 70,000 homes from 1908 to 1940.<sup>154</sup> In the post-World War II period, Sears attempted to market a limited number of prefabricated models that used both precut and panelized structural elements under the brand name “Homart.” These did not seem to have popular appeal, and were discontinued in 1952.<sup>155</sup>



Top picture: Sears’ “Alhambra” house featured Mediterranean Revival styling. (Source: [Houses by Mail](#)).

Bottom picture: Sears’ “Dover” was a popular model in the 1930s. (Source: [Sears House Designs of the Thirties](#)).

## Identifying the Precut Property Type

One of the inherent characteristics for most prefabricated housing is that it blends in with conventionally constructed houses, especially with regard to the precut house type. This quality makes prefab houses nearly indistinguishable from houses that are custom or speculatively built. In the case of precut house types, manufacturers emulated popular house designs of the period including Bungalows, American Foursquares, and Colonial Revival styles. From the exterior a precut house cannot be identified. Even with the assistance of field guides like *Houses by Mail*, or *Finding the Houses that Sears Built* verifying that a particular resource is associated with a precut manufacturer cannot be guaranteed.

Through the course of the research for this study, it was determined that to conclusively identify a precut property type, more intensive research methods are required. This includes interior investigation of the resource to confirm the floor plan and measured drawings. Gaining access to the interior can verify whether a particular house's plan matches the original floor plan. Keep in mind that many precut manufacturers and local lumber companies copied house designs (with slight variations), so a plan could be copied again and again by different companies. Additionally, precut manufacturers allowed for floor plan customization, so a home owner could flip the plan within the manufacturer's prescribed building footprint. So, although the precut house plan could be altered originally, the building footprint is always a standard size. Measuring the exterior dimensions and comparing them with the published drawings dimensions, then, is a pretty conclusive method for identification. Additionally, interior investigation can help to find manufacturer's shipping labels and stamps on the structural materials. Floor joists in basements and exposed rafters in attics should have numbers or letters stamped on the face and butt-end of the structural member. Shipping labels can sometimes be found on the back of stair carriages or doorjamb.

Though not carried out for this report because of time constraints, additional research on deeds and mortgages might verify that a resource is a precut house. Deed and mortgage records sometimes yield information about the origins of a particular property. According to precut house historian Rosemary Thornton, Sears provided mortgages from 1915 to 1933. Grantors will be listed as one of the trustees representing Sears. The names of either Walker O. Lewis or Nicholas Wieland will usually be included on the deed as grantor, if the house is a Sears prefab.<sup>156</sup> Building permits also might contain information about the architect. Precut manufacturers listed architects by company names on these records such as "Sears Roebuck" or "Aladdin." It is important to remember that not all precut associated properties will have this information listed in the archival records.<sup>157</sup>

Sanborn Maps and Plats can assist in the identification of neighborhoods that developed during the period of precut house popularity. As a general rule, neighborhoods developed in the period of 1900–1940 would be the areas to look for precut houses.<sup>158</sup>

There are several field guides and reprints of catalogues (listed in the bibliography) available to assist in the identification of mail-order houses. Analyze architectural characteristics and patterns found on individual models to assist in initial identification of a particular house. Look for the placement of chimneys and windows and compare to the models shown





The center block circled above is a detail that Gordon-Van Tine used on some of their houses. Also note the decorative stick work on the columns. Precut manufacturers sometimes used distinctive combinations on house models.

in the guidebooks.<sup>159</sup> Mail-order manufacturers sometimes used distinctive details that can help distinguish a kit house. Sears used five-piece eave brackets and decorative stick work on columns.<sup>160</sup> Gordon-Van Tine sometimes placed a center block on the porch fascia piece for the house number to be placed.<sup>161</sup> Keep in mind that alterations to the published version may have occurred when the house was constructed because of customization. However, customizing the house, whether by flipping the floor plan or through altering the fenestration pattern, will never alter the basic dimensions of the building footprint. So, measurements are a very certain way of confirming the manufacturer of a precut house, according to most precut historians. Foundations for precuts can be concrete block, brick, or poured concrete. Exterior cladding also ranged from horizontal clapboard siding, shingles, face brick, stucco, and concrete block.

### If an intensive survey can be made:

Check floor joists and roof rafters for stamps that identifying numbers or letters. These stamps were located on the butt end and the face of the lumber.<sup>162</sup> Windows with small numbered plates can also indicate a precut house. Also look for shipping labels in areas like closets, doorjambs, or the on back of stair carriages. Fixtures and interior trim alone do not necessarily prove that a house is associated with a catalogue house. These items could have been ordered by any homeowner and were not just intended for use on precut houses.<sup>163</sup> Above all, measuring the resource can confirm whether it is associated with a precut manufacturer. This process, however, requires that the researcher identify the particular model and floor plan in a field guide or company catalogues. These measurements for precut houses are precise since the building materials were standardized, so if the house matches the dimensions in the original plan it is probably a kit house.<sup>164</sup>



Left: A shipping label for a Sears house in Anderson County was found on the inside of a door frame. Right: Examples of stamped lumber. The top picture is from a Sears house which used numbers. The bottom picture is from a Gordon-Van Tine House, which has words stamped on the lumber identifying where it should be placed in the framing system. (Source: [www.desertweyr.com](http://www.desertweyr.com)).



## Brief History of Panelized Prefabricated Houses

Panelized houses were manufactured in a similar process to precut houses. However, they took the production process one step further. Framing members were cut to specification, and the individual pieces were then assembled into larger units called panels at the factory. Panelized prefab houses actually were available at the beginning of the twentieth century. Early panelized houses were constructed with 2-foot by 2-foot or 2-foot by 3-foot lumber studs and preassembled into sections of walls, roofs, floors and partitions. The assembled sections, however, did not include interior or exterior sheathing. The exterior cladding and interior wall finish had to be applied at the building site. These panelized sections were connected with bolts making them easily assembled and disassembled. During these early years, panelized houses were used for portable houses and were not as popular as the precut houses.<sup>165</sup>

During the 1930s, panelized prefab manufacture advanced with new materials and production techniques. The increased availability of sheet materials, like plywood and steel, made panelized construction more sophisticated. By creating stressed-skin panels and steel



Above: Gunnison stressed skin panels fitted with window openings. By including windows and doors in panels, construction time at the site was reduced. (Source: [The Prefabrication of Houses](#)).

modules, the panels themselves could become the structure of the building as well as the exterior shell. The prefabricated building units could be easily and efficiently assembled at the building site. Connected together by a joint system, panelized prefabs could be erected in just a few days. Typically, companies produced panel units with doors and windows already in-place.<sup>166</sup>

Company designers took advantage of modular coordination to produce units in standardized sizes. A variety of plans could be based on modular units providing a variety of models. Generally, panelized prefabs were single-story buildings with two to three bedroom plans. Conceived to be “starter” houses for first time homebuyers, panelized prefabs were generally designed in ranch and Cape Cod architectural styles.<sup>167</sup> Some companies offered standardized add-ons or options to customize an individual house. Ranging from porches, breezeways, garages, and ornate trim, these architectural “extras” enhanced the individuality of the prefab house.<sup>168</sup>

Panelized manufacturers were conscientiously trying to assimilate panelized prefabs with conventionally constructed houses. The industry was trying to overcome negative public per-

ceptions about prefabricated housing that had been created by World War II defense housing and by some of the non-traditional materials used to produce prefabs.<sup>169</sup> This accounts for the desire to cover the exterior panels with siding materials like shingles or clapboard. Companies often offered siding materials that could be purchased with the prefab.<sup>170</sup>

Marketing of the mid-century panelized prefabs generally was accomplished through company dealers. Foster Gunnison of Gunnison Homes is generally credited with innovating this retail sales technique for prefab houses. The dealer would function as a salesman, contractor, and financier. Companies did produce catalogues featuring house models, but the potential homebuyer would go through a dealer to make the purchase. Dealers typically had a “model” home available for prospective clients to tour and see the finished product in three dimensions, not just from a plan in a catalogue. This proved to be an effective sales technique which became an industry standard enduring even today.<sup>171</sup>

Panelized manufacturers generally distributed their products by truck. Specially designed vehicles organized the house parts into logical divisions so when the truck was unloaded the house could easily be assembled. Since the goal of prefab housing was to keep costs low, the delivery range of panelized houses from the factory was usually limited to 200-300 miles. As a function of this phenomenon, most panelized manufacturers had a regional distribution area.<sup>172</sup>



Above: Loading the Lustron materials onto a truck specially designed for the company. Materials were loaded to coordinate unloading with the assembly process on the site. (Source: [The Prefabrication of Houses](#)).

In terms of structural systems, and design the panels formed modular units with uniform dimensions and a varying degree of finish material, sometimes referred to as “stressed skin” panels. This allowed for a variety of floor plans to be developed using the same standard unit. Panels could consist of just the framing studs and plates that formed the basic structure of a wall. In other cases, companies assembled complete units with finished interior and exterior walls complete with windows and doors. The panels were shipped to the job site and assembled quickly for the homeowner.<sup>173</sup>



Right: Assembling a Cemsto House using solid panels in 4' by 4' modules. These panels served as both the interior and exterior wall surfaces. (Source: [The Prefabricated of House](#)).

## Selected Panelized Manufacturers

**D**ue to the regional nature of the panelized prefab industry, numerous manufacturers were spread across the country. Since this study is concerned with a specific region of Kentucky, only the manufacturers within the area are described below. Many of the included manufacturers had national recognition for their production and marketing techniques. Examples of panelized manufacturers include Gunnison Homes, National Homes, General Plywood Corporation, Hodgson Homes, Lustron, and Peaseway Homes.

Unlike precut houses and despite an effort to appear traditional, most panelized houses are recognizable on the landscape. They may have certain design elements or features that can be spotted from the street. So, while many of these houses use a traditional style vocabulary, the materials and detailing give their panelized prefab status away.

### Gunnison Homes, New Albany, Indiana

Foster Gunnison helped to pioneer the panelized stressed-skin plywood production. The company was founded in 1935. Originally named “Gunnison Magic Homes,” Gunnison



Above: One of the Gunnison Deluxe models showing an optional breezeway connecting to a single car garage, which was also an extra feature. (Source: [A Practical Guide to Prefabricated Houses](#)).

produced panels in 4-foot by 8-foot units by bonding the 1/4-inch plywood to 1 1/2-inch thick framing members with a heated press. Total wall thickness was only 2-inches including insulation. Doors and windows were preinstalled into the panels. Metal registration plates bearing the company name and house serial number were installed in the utility room of most Gunnisons. By the start of World War II, Gunnison had sold 5,000 prefab houses. U.S. Steel purchased the company in 1944. After the war, Gunnison continued prefab production and by 1950 offered fourteen basic models. These models were one-story ranch houses with gable roofs. Gunnison Homes ceased production in 1974. Gunnison houses were distributed nationwide.<sup>174</sup>

### Lustron Corporation, Columbus, Ohio

Carl Strandlund established Lustron homes in 1947 during the post-World War II era. Supported by a hefty government contracts, Strandlund sought to produce an all steel industrial house.<sup>175</sup> Using a combination of steel framing members and porcelain enameled coated steel panels, Lustrons represented a new kind of panelized house. The steel panels

provided structural support and functioned as exterior sheathing. The porcelain enamel panels were available in four colors including “Dove Grey,” “Maize Yellow,” “Surf Blue,” or “Desert Tan.” Houses could be constructed within 130-manhours once the concrete slab foundation was poured.<sup>176</sup> Despite optimistic estimates of producing 30,000 units a year, the company only produced approximately 3000 Lustrons before ceasing operations in 1950.<sup>177</sup> Lustrons were shipped across the country and have been found extant in twenty-four states.<sup>178</sup> The “*Westchester*,” the most common model, came in two- and three-bedroom units at a cost of \$7000. Lustron also offered the “*Newport*” model that could also have two- or three-bedrooms, though “*Newport*” houses had a smaller footprint than the “*Westchester*.” All houses were marked with a metal registration plate certifying the house was a Lustron and the houses can be easily identified from the exterior.<sup>179</sup>



Above: A Lustron “Newport” model. Besides being smaller than the “Westchester,” this model has a front gable facade. (Source: [The Prefabrication of Houses](#)).

## National Homes, Lafayette, Indiana

Three former Gunnison Homes employees founded National Homes in 1940. By 1946, the company had sold 10,000 houses. National Homes employed the stressed-skin panelized method of construction for their prefab houses. Special 3/8-inch waterproof plywood was mounted onto 2-inch by 3-inch framing studs. Panels were produced as full room-sized units with doors and windows pre-installed. A special structural floor framing made of steel underpinned the primary structure. Metal registration plates listing the house serial number and company logo were placed in utility rooms. Designs were based on five basic floor plans with nine different “traditional” architectural styles.<sup>180</sup> The company continued to be successful into the 1960s. Company literature cites that by 1968, National Homes had sold 325,000 prefabs and claimed to be number one in U.S. prefab house sales. The prefabs offered by the company during this period included ranches, split-level, and two-story designs with Colonial or Contemporary styles.<sup>181</sup> The company was still producing prefab houses in 1971, with sales



Top picture: A National Homes “Thrifty” model. Panelized prefab houses of the postwar era were often small two- or three-bedroom starter houses. (Source: [The Prefabrication of Houses](#).)  
Bottom picture: National Homes expanded the number and size of prefab houses in their catalogue. This tri-level house was very modern in the 1960s. (Source: Private collection).



figures of \$178.5 million.<sup>182</sup> Information about when the company ceased operations has not been uncovered. National Homes were distributed through authorized dealers in Ohio, Indiana, Kentucky, Illinois, Michigan, and Wisconsin.<sup>183</sup>

### General Plywood, Louisville, Kentucky

Very little information has been located about the General Plywood in primary and secondary sources. The company used a combination of precut members and panelized units



Above: A Cape Cod prefab house offered by the General Plywood Company. (Source: [Prefabs on Parade](#)).

to create prefab houses. Panels were made by gluing 5/16-inch plywood to 2-inch by 4-inch frames creating a stressed skin panel. Windows and doors were preinstalled into the panels. Precut joists and rafters were used to frame floors and ceilings. Exterior siding could be applied to the panelized surfaces. Houses could have as many as three bedrooms and the images located show designs in the Cape Cod style popular after World War II. No sales figures or distribution ranges for General Plywood have been identified.<sup>184</sup>

### Peaseway, Cincinnati, Ohio

Right: A Peaseway prefab house featuring permastone cladding. This house looks just like conventionally constructed houses on the exterior. (Source: [A Practical Guide to Prefabricated Houses](#)).

Owned by the Pease Woodwork Co., Peaseway Homes started production in 1940. The manufacturing plant was located in Hamilton, Ohio. Using panelized stressed-skin plywood was applied to a standard 2-foot by 4-foot framework. Panels were then joined with invisible, interlocking joints. Exterior surfaces were sided with shingles or clapboard though one house style featured permastone cladding. Peaseway houses were offered in 24 different floor plans generally with Cape Cod architectural styling. Authorized dealers in Ohio, Michigan, Indiana, Illinois, West Virginia, and Kentucky sold Peaseway homes. Houses generally cost between \$6000 and \$7000.<sup>185</sup>



### Steelcraft Manufacturing Co., Cincinnati, Ohio

Steelcraft started manufacturing prefab barracks for the U.S. Government in 1941. Following the war, Steelcraft began producing single-family units by converting its construction methods from barracks to single family housing. This company used a combination of steel framing and aluminum panels to build the basic structure. Panels were joined with

batten strips. The exterior was then stuccoed and an aluminum roof was applied to the building envelope. Units came in one and two-bedroom styles measuring 20 feet by 24 feet and 20 feet by 32 feet respectively. Houses were sold for prices between \$994.00 and \$1400.00 but did not include interior partitions, lighting, heating or plumbing fixtures. These features could be added at an additional cost making the two-bedroom model available for \$3000.00. Like Gunnison and National, company dealers sold Steelcraft homes to prospective customers. Information about sales figures and distribution areas has not been compiled.<sup>186</sup>



Above: A Steelcraft prefab house. All framing materials were either steel or aluminum. Interestingly, stucco was added as the exterior sheathing material. (Source: [Prefabs on Parade](#)).

## Sectional Prefabricated Houses

The sectional house system involved a process that manufactures the building in units. Instead of assembling flat panels at the site, sectional houses were literally manufactured in three-dimensional modules. The complete house could be cut for example, into eight-foot “slices” or cut room by room. These sections were finished on the interior and exterior with walls, doors, trim, plumbing, and wiring. Shipped to the house site by truck, the individual sections then were attached together to form a complete house. This allowed for the house to be assembled quickly, sometimes even in one day. The advantage of sectional houses was that it allowed for quick occupation of the dwelling, since very little finish work was required at the site. This prefab type was especially suitable for acute housing shortages.<sup>187</sup>

Only three known examples of sectional houses in the United States have been identified. The Tennessee Valley Authority (TVA) actually created this type of prefab system during the 1930s. Designed to be temporary worker housing at TVA hydroelectric projects, these sectional houses could be assembled and disassembled with relative ease.<sup>188</sup> The TVA sectional houses especially suited work sites in remote locations where labor and building materials were scarce. The truckable TVA houses could arrive at the site and be assembled for habitation by the end of the day.<sup>189</sup> The federal government



Top: A unit of a TVA Sectional houses arriving at building site.  
Bottom: The completed TVA prefab. (Source for both: [The Prefabricated House](#)).

adopted the TVA sectional houses for war housing in the 1940s. The Army actually erected several thousand sectional houses in the Oak Ridge, Tennessee Manhattan Project site. After the war, Prencos, and Reliance were two companies that developed sectional houses though no further information has been found about these houses.<sup>190</sup>

## **Preassembled Prefabricated Houses**

The precursor to the modern manufactured home, a preassembled prefab house was completely constructed at the factory plant. All interior fixtures and trim as well as exterior cladding, windows and doors were assembled to create a complete house ready for occupancy. The preassembled unit would be delivered by truck to the house site and attached to a pre-poured foundation. Preassembled houses were limited to approximately eight feet in width due to truck shipping limitations. Not many prefabricated houses were constructed in this method, most likely because the mobile home became more prevalent.<sup>191</sup>

Wingfoot Homes are the only identified example of a preassembled prefab type. Manufactured as a complete unit including plumbing and wiring, the Wingfoot Home was delivered to the site by truck. Wingfoot Homes did not have wheel axels and were not considered mobile. The LeTourneau poured concrete prefabricated house could also be considered a more unusual representation of a preassembled house. LeTourneau houses were manufactured at the site with a large machine called the “Tournalayer” that cast the house in concrete. Though manufacture of these houses occurred at the building site, the machine itself was prefabricated to make the final product.<sup>192</sup>



Above: A completely preassembled Wingfoot house ready for occupancy. (Source: [Prefabs on Parade](#)).



Above: A Le Tourneau prefab house that was produced at the site in a single pour of concrete cast in the “Tournalayer” machine. (Source: [Prefabs on Parade](#)).

## Identification of Panelized/Sectional/Preassembled Property Types

For panelized, sectional, or preassembled property types, identification can be somewhat easier than precut houses. Certain manufacturers' houses incorporate unique characteristics that make visual identification easy from the exterior. If the researcher can become familiar with the architectural details and options offered by an individual manufacturer, these prefab types can be identified in the field without much difficulty. Trade journals, such as *Architectural Forum* or *Fortune Magazine*, where manufacturers advertised their products with illustrations depicting different designs, can help the researcher identify these particular prefab types. Secondary sources, *Prefabs on Parade* and *A Practical Guide Prefabricated Houses*, can also provide visual reference for numerous prefab manufacturers across the country.

City directories might prove useful to researchers for identifying prefab dealers. If dealers can be found in a community, most likely some prefab construction took place. Deeds and mortgages could potentially list a prefab company name, though most did not offer mortgages directly from the company. Building permits might also list the manufacturer's name as the architect.

Plats and Sanborn Maps can assist in the identification of neighborhoods that developed during the period of panelized or sectional houses, and to a lesser extent preassembled house popularity. As a general rule, neighborhoods developed in the period of 1940 to 1980s, with particular focus on the era before 1970, would be the areas to look for panelized, sectional, or preassembled houses. If the prefab house is constructed with steel such as Lustron houses, a color Sanborn Map will identify steel buildings in gray.

Visual inspection of a resource might reveal building elements associated with a particular manufacturer. First, some panelized prefabs remain unclad with their original panels exposed. Look for smooth, planar surfaces with seams that are left uncovered

or concealed by vertical battens. In some examples, the house might be partially clad with shingles or siding on the lower half leaving the panels exposed on the upper half. Panelized



Above: A National house with exposed panels on the side elevation leaving a smooth surface.



Above: Exterior details like porch railings and door hoods with wrought iron detailing are hall-marks of a Gunnison house. An other tell tale detail of a Gunnison house is the sheet metal chimney with horizontal vents.

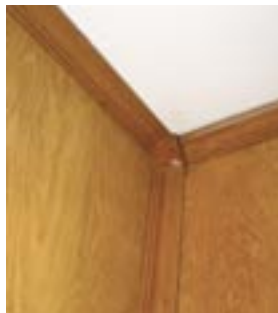
manufacturers used distinctive options or details to customize prefab houses. If the researcher is familiar with these elements, even an altered prefab might be identified from the exterior. Elements to look for include sheet metal chimneys located on ridgelines, decorative grilles and vents, exterior trim, battens, and even the panels themselves.

### If an intensive survey can be made:

In cases where no archival source has been located for a particular prefab model, interior investigation might reveal a registration plate for the manufacturer. Check for a company registration plate usually made of metal on the interior of the house. These metal plates are generally found in utility rooms or near the kitchen. Though the exterior of a property might have been sided, the interior panels might still be uncovered. Look for seams at regular intervals even if the walls have been wallpapered or painted. Some companies used battens to cover seams, but others did not. Some manufacturers have distinctive architectural elements and trim. If the researcher is familiar with a particular company's unique decorative elements, the prefab might be positively identified.

When these types cannot be identified from the exterior, measuring the resource can confirm whether it is associated with a panelized, sectional, or preassembled manufacturer. This process, however, requires that the researcher identify the model and floor plan in a manufacturer's catalogue. At this time, no single field guide exists that catalogues panelized/sectional/preassembled property types by manufacturer. If the researcher has been able to locate a particular manufacturer's catalogue of houses, dimensions and floor plans can be compared. These measurements are precise, so if the house matches the footprint dimensions in the original plan it is

The photo on the right shows a National Homes registration plate. On the left, a corner batten on the interior of a Gunnison house. These types of details let the prefab house detective know that this is probably a Gunnison or National house





probably a prefab house. Like precut houses, these prefab types could also be customized. But again, the overall building footprint was not altered in this process.

## Conclusion

Understanding the origins of prefabricated houses gives insight into their importance in domestic architectural history. Developed as an industrial form of housing, prefabs made their place on the twentieth century American landscape. Prefab houses, as we have seen, are important for their association with the overarching goal of providing attractive, affordable homes for all Americans. The single-family house was viewed by many as the key to all ills facing society and was thought to foster healthy, happy families. To this end, housing reformers and prefab manufacturers collaborated, culturally, if not literally, to develop better ways of providing housing to more and more Americans. In other words, cost-saving measures and industrialization of the housing process both have a distinct cultural component. Prefab housing manufacturers were not just trying to make money; they were also responding to the deep-seated desire for a decent and affordable home for all social and economic classes. No longer were multi-generational families encouraged to stay under one roof. Home ownership came within reach of the majority of Americans, regardless of income, and this was directly related to improvements in the production of housing. Offering ways to efficiently distribute and erect housing, prefab manufacturers adopted new technologies and materials. In doing so, they led to a revolution in the way Americans lived. Prefab housing then is a significant reminder of the democratic desire to provide decent, safe, and affordable housing for all.

The following section will address registration requirements for prefabricated housing and case study survey findings. Placing prefabricated housing into an appropriate historic context, as this section has attempted to do, will help to assess the significance and integrity of these prefab resources. Case study examples located during field survey will also serve to illustrate how prefabricated housing can be evaluated.

## Endnotes

- <sup>1</sup> A.L. Carr, *A Practical Guide to Prefabricated Houses*, p. 5.
- <sup>2</sup> Robert Schweitzer and Michael W.R. Davis, *America's Favorite Homes: Mail-Order Catalogues as a Guide to Popular 20<sup>th</sup>-Century Houses*, p. 57.
- <sup>3</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 3.
- <sup>4</sup> Alfred Bruce and Harold Sandbank, *A History of Prefabrication*, p. 50.
- <sup>5</sup> Kenneth T. Jackson, *Crabgrass Frontier*, p. 127-128.
- <sup>6</sup> Christine Hunter Ratches, *Rowhouses and Railroad Flats*, p. 146.
- <sup>7</sup> Kenneth T. Jackson, *Crabgrass Frontier*, p. 127-128.
- <sup>8</sup> David L. Ames and Linda Flint McClelland, *Historic Residential Suburbs: Guidelines for Evaluation and Documentation for the National Register of Historic Places*, 54-56.
- <sup>9</sup> David L. Ames and Linda Flint McClelland, *Historic Residential Suburbs: Guidelines for Evaluation and Documentation for the National Register of Historic Places*, 63.
- <sup>10</sup> Dolores Hayden, *Building Suburbia: Green Fields and Urban Growth, 1820-2000*, p. 133.
- <sup>11</sup> Clifford Edward Clark, Jr., *The American Family Home: 1800-1960*, p. 201.
- <sup>12</sup> Allan D. Wallis, "House Trailers: Innovation and Accommodation in Vernacular Housing," p. 29.
- <sup>13</sup> Allan D. Wallis, "House Trailers: Innovation and Accommodation in Vernacular Housing," p. 34- 35.
- <sup>14</sup> Scott Erbes, "Manufacturing and Marketing the American Bungalow: The Aladdin Company, 1906 – 1920," p. 53-54.
- <sup>15</sup> Dolores Hayden, *Building Suburbia: Green Fields and Urban Growth, 1820-2000*, p. 118.
- <sup>16</sup> Rosemary Thorton, *The Houses that Sears Built*, p. 74.
- <sup>17</sup> Dolores Hayden, *Building Suburbia: Green Fields and Urban Growth, 1820-2000*, p. 118.
- <sup>18</sup> Donald Albrecht, *World War II and the American Dream: How Wartime Building Changed a Nation*, p. 20.
- <sup>19</sup> Curt Dietz, "A Survey and Analysis of House Prefabrication," p. 31.
- <sup>20</sup> Thomas T. Fetzters, *The Lustron Home: The History of a Postwar Prefabricated Housing Experiment*, p. 6.
- <sup>21</sup> Gilbert Herbert, *The Dream of the Factory-Made House*, p. 10-12.
- <sup>22</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 9.
- <sup>23</sup> Dolores Hayden, *Building Suburbia: Green Fields and Urban Growth, 1820-2000*, p. 97.
- <sup>24</sup> Dolores Hayden, *Building Suburbia: Green Fields and Urban Growth, 1820-2000*, p. 116.
- <sup>25</sup> Rosemary Thorton, *The Houses that Sears Built*, p. 40.
- <sup>26</sup> Rosemary Thorton, *The Houses that Sears Built*, p. 12.
- <sup>27</sup> Rosemary Thorton, *The Houses that Sears Built*, p. 5.
- <sup>28</sup> Dolores Hayden, *Building Suburbia: Green Fields and Urban Growth, 1820-2000*, p. 110.
- <sup>29</sup> Clifford Edward Clark, Jr., *The American Family Home: 1800-1960*, p. 193.
- <sup>30</sup> Clifford Edward Clark, Jr., *The American Family Home: 1800-1960*, p. 193.
- <sup>31</sup> David L. Ames and Linda Flint McClelland, *Historic Residential Suburbs: Guidelines for Evaluation and Documentation for the National Register of Historic Places*, p. 63.
- <sup>32</sup> A.L. Carr, *A Practical Guide to Prefabricated Houses*, p. 49.
- <sup>33</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 9.
- <sup>34</sup> Clifford Edward Clark, Jr., *The American Family Home: 1800-1960*, p. 193.
- <sup>35</sup> Joseph B. Mason, *History of Housing in the U.S.: 1930*, p. 56 The other prefab manufacturers were Green Lumber Company, Michigan; Southern Mill and Lumber, Kansas; and Houston Ready Cut, Texas.
- <sup>36</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 61.
- <sup>37</sup> Gwendolyn Wright, *Building the Dream: A Social History of Housing in America*. p. 242.
- <sup>38</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 61-62.
- <sup>39</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 71.
- <sup>40</sup> Gwendolyn Wright, *Building the Dream: A Social History of Housing in America*. p. 156.
- <sup>41</sup> Scott Erbes, "Manufacturing and Marketing the American Bungalow: The Aladdin Company, 1906-20," p. 47.

- <sup>42</sup> A.L. Carr, *A Practical Guide to Prefabricated Houses*, p. 11.
- <sup>43</sup> Dolores Hayden, *Building Suburbia: Green Fields and Urban Growth, 1820-2000*, p. 110. Hayden points out that despite the mail-order companies' declaration that the houses could be constructed as a do-it-yourself project, oftentimes local carpenters were hired to assist in building kit houses.
- <sup>44</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 29.
- <sup>45</sup> David L. Ames and Linda Flint McClelland, *Historic Residential Suburbs: Guidelines for Evaluation and Documentation for the National Register of Historic Places*, p. 63.
- <sup>46</sup> Gilbert Herbert, *The Dream of the Factory-Made House*, p. 230.
- <sup>47</sup> David L. Ames and Linda Flint McClelland, *Historic Residential Suburbs: Guidelines for Evaluation and Documentation for the National Register of Historic Places*, p. 65.
- <sup>48</sup> O.W. McKenney, et. al., *Prefabs on Parade*, p. 18.
- <sup>49</sup> Gwendolyn Wright, *Building the Dream: A Social History of Housing in America*, p. 240-243.
- <sup>50</sup> O.W. McKenney, et. al., *Prefabs on Parade*, p. 18.
- <sup>51</sup> Clifford Edward Clark, Jr., *The American Family Home: 1800-1960*, p. 196-197.
- <sup>52</sup> Clifford Edward Clark, Jr., *The American Family Home: 1800-1960*, p. 131.
- <sup>53</sup> Clifford Edward Clark, Jr., *The American Family Home: 1800-1960*, p. 162, 182.
- <sup>54</sup> David L. Ames and Linda Flint McClelland, *Historic Residential Suburbs: Guidelines for Evaluation and Documentation for the National Register of Historic Places*, p. 56.
- <sup>55</sup> Gwendolyn Wright, *Building the Dream: A Social History of Housing in America*, p. 160-161.
- <sup>56</sup> David L. Ames and Linda Flint McClelland, *Historic Residential Suburbs: Guidelines for Evaluation and Documentation for the National Register of Historic Places*, p. 65.
- <sup>57</sup> Clifford Edward Clark, Jr., *The American Family Home: 1800-1960*, p. 198-199.
- <sup>58</sup> Thomas T. Fetters, *The Lustron Home: The History of a Postwar Prefabricated Housing Experiment*, p. 27.
- <sup>59</sup> Thomas T. Fetters, *The Lustron Home: The History of a Postwar Prefabricated Housing Experiment*, p. 27.
- <sup>60</sup> Curt Dietz, "A Survey and Analysis of House Prefabrication." p. 1.
- <sup>61</sup> A.L. Carr, *A Practical Guide to Prefabricated Houses*, p. 11.
- <sup>62</sup> Clifford Edward Clark, Jr., *The American Family Home: 1800-1960*, p. 181-182.
- <sup>63</sup> Raymond K. Graff, *The Prefabricated House*, p. 10.
- <sup>64</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 81.
- <sup>65</sup> Curt Dietz, "A Survey and Analysis of House Prefabrication," p. 28.
- <sup>66</sup> O.W. McKenney, et. al., *Prefabs on Parade*, p. 16-17.
- <sup>67</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 111.
- <sup>68</sup> Curt Dietz, "A Survey and Analysis of House Prefabrication." p. 30.
- <sup>69</sup> Rosemary Thorton, *The Houses that Sears Built*, p. 34-35.
- <sup>70</sup> Dolores Hayden, *Building Suburbia: Green Fields and Urban Growth, 1820-2000*, p. 97-98.
- <sup>71</sup> A.L. Carr, *A Practical Guide to Prefabricated Houses*, p. 13.
- <sup>72</sup> Curt Dietz, "A Survey and Analysis of House Prefabrication." p. 31.
- <sup>73</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 219-221.
- <sup>74</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 187.
- <sup>75</sup> O.W. McKenney, et. al., *Prefabs on Parade*, p. 15.
- <sup>76</sup> Curt Dietz, "A Survey and Analysis of House Prefabrication." p. 32.
- <sup>77</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 188.
- <sup>78</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 189.
- <sup>79</sup> Curt Dietz, "A Survey and Analysis of House Prefabrication." p. 20.
- <sup>80</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 181.
- <sup>81</sup> O.W. McKenney, et. al., *Prefabs on Parade*, p. 15.
- <sup>82</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 181-182.
- <sup>83</sup> Thomas T. Fetters, *The Lustron Home: The History of a Postwar Prefabricated Housing Experiment*, p. 8.

- <sup>84</sup> Thomas T. Fetters, *The Lustron Home: The History of a Postwar Prefabricated Housing Experiment*, p. 7.
- <sup>85</sup> Pamela Simpson, *Quick, Cheap and Easy*, p. 24.
- <sup>86</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 183.
- <sup>87</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 181.
- <sup>88</sup> Colin Davies, *The Prefabricated Home*, p. 53-54.
- <sup>89</sup> A.L. Carr, *A Practical Guide to Prefabricated Houses*, p. 13.
- <sup>90</sup> Katherine Cole Stevenson and H. Ward Jandl, *Houses by Mail: A Guide to Houses from Sears, Roebuck and Company*, p. 32.
- <sup>91</sup> Colin Davies, *The Prefabricated Home*, p. 53-54.
- <sup>92</sup> A.L. Carr, *A Practical Guide to Prefabricated Houses*, p. 70.
- <sup>93</sup> Thomas T. Fetters, *The Lustron Home: The History of a Postwar Prefabricated Housing Experiment*, p. 18.
- <sup>94</sup> Gilbert Herbert, *The Dream of the Factory-Made House*, p. 223.
- <sup>95</sup> Colin Davies, *The Prefabricated Home*, p. 25-29.
- <sup>96</sup> Gordon J. Chapman, *Marketing of Prefabricated Houses*, p. 40-41.
- <sup>97</sup> Curt Dietz, "A Survey and Analysis of House Prefabrication," p. 7.
- <sup>98</sup> Raymond K. Graff, *The Prefabricated House*, p. 9.
- <sup>99</sup> Clifford Edward Clark, Jr., *The American Family Home: 1800-1960*, p. 201.
- <sup>100</sup> Raymond K. Graff, *The Prefabricated House*, p. 24.
- <sup>101</sup> Curt Dietz, "A Survey and Analysis of House Prefabrication," p. 38.
- <sup>102</sup> Rosemary Thorton, *The Houses that Sears Built*, p. 83-84.
- <sup>103</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 195.
- <sup>104</sup> Randy Shipp, "Gunnison Homes: A Brief History," p. 2.
- <sup>105</sup> A.L. Carr, *A Practical Guide to Prefabricated Houses*, p. 13.
- <sup>106</sup> Raymond K. Graff, *The Prefabricated House*, p. 24.
- <sup>107</sup> Robert Schweitzer and Michael W.R. Davis, *America's Favorite Homes: Mail-Order Catalogues as a Guide to Popular 20<sup>th</sup>-Century Houses*, p. 62.
- <sup>108</sup> Gordon J. Chapman, *Marketing of Prefabricated Houses*, p. 25.
- <sup>109</sup> Gilbert Herbert, *The Dream of the Factory-Made House*, p. 230.
- <sup>110</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 49.
- <sup>111</sup> Thomas T. Fetters, *The Lustron Home: The History of a Postwar Prefabricated Housing Experiment*, p. 8-9.
- <sup>112</sup> Direct sales through the catalogues were still the primary method for kit house sales.
- <sup>113</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 51.
- <sup>114</sup> A.L. Carr, *A Practical Guide to Prefabricated Houses*, p. 16.
- <sup>115</sup> Gordon J. Chapman, *Marketing of Prefabricated Houses*, p. 23.
- <sup>116</sup> A.L. Carr, *A Practical Guide to Prefabricated Houses*, p. 16.
- <sup>117</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 379.
- <sup>118</sup> Katherine Cole Stevenson and H. Ward Jandl, *Houses by Mail: A Guide to Houses from Sears, Roebuck and Company*, p. 30.
- <sup>119</sup> Rosemary Thorton, *The Houses that Sears Built*, p. 3.
- <sup>120</sup> Raymond K. Graff, *The Prefabricated House*, p. 37.
- <sup>121</sup> Robert Schweitzer and Michael W.R. Davis, *America's Favorite Homes: Mail-Order Catalogues as a Guide to Popular 20<sup>th</sup>-Century Houses*, p. 48.
- <sup>122</sup> Scott Erbes, "Manufacturing and Marketing the American Bungalow: The Aladdin Company, 1906-20," p. 47.
- <sup>123</sup> Rosemary Thorton, *The Houses that Sears Built*, p. 11.
- <sup>124</sup> Curt Dietz, "A Survey and Analysis of House Prefabrication." p. 5.
- <sup>125</sup> Curt Dietz, "A Survey and Analysis of House Prefabrication." p. 2-3.
- <sup>126</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 11-12.

- <sup>127</sup> Rosemary Thorton, *The Houses that Sears Built*, p. 24.
- <sup>128</sup> Dolores Hayden, *Building Suburbia: Green Fields and Urban Growth, 1820-2000*, p. 102.
- <sup>129</sup> Katherine Cole Stevenson and H. Ward Jandl, *Houses by Mail: A Guide to Houses from Sears, Roebuck and Company*, p. 21.
- <sup>130</sup> Katherine Cole Stevenson and H. Ward Jandl, *Houses by Mail: A Guide to Houses from Sears, Roebuck and Company*, p. 30.
- <sup>131</sup> Katherine Cole Stevenson and H. Ward Jandl, *Houses by Mail: A Guide to Houses from Sears, Roebuck and Company*, p. 19.
- <sup>132</sup> <http://clarke.cmich.edu/aladdin/Aladdin.htm>.
- <sup>133</sup> Rosemary Thorton, *The Houses that Sears Built*, p. 92-94.
- <sup>134</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 12.
- <sup>135</sup> Robert Schweitzer and Michael W.R. Davis, *America's Favorite Homes: Mail-Order Catalogues as a Guide to Popular 20<sup>th</sup>-Century Houses*, p. 64.
- <sup>136</sup> Robert Schweitzer and Michael W.R. Davis, *America's Favorite Homes: Mail-Order Catalogues as a Guide to Popular 20<sup>th</sup>-Century Houses*, p. 75-76.
- <sup>137</sup> Dale Wolicki, "Historical Notes on Kit and Precut Homes" <http://www.elginarea.org/kithouse/>.
- <sup>138</sup> Scott Erbes, "Manufacturing and Marketing the American Bungalow: The Aladdin Company, 1906-20," p. 47.
- <sup>139</sup> Dale Wolicki, "Historical Notes on Kit and Precut Homes" <http://www.elginarea.org/kithouse/>.
- <sup>140</sup> Robert Schweitzer and Michael W.R. Davis, *America's Favorite Homes: Mail-Order Catalogues as a Guide to Popular 20<sup>th</sup>-Century Houses*, p. 71-72.
- <sup>141</sup> Dale Wolicki, "Historical Notes on Kit and Precut Homes" <http://www.elginarea.org/kithouse/>.
- <sup>142</sup> Dale Wolicki, "Historical Notes on Kit and Precut Homes" <http://www.elginarea.org/kithouse/>.
- <sup>143</sup> Robert Schweitzer and Michael W.R. Davis, *America's Favorite Homes: Mail-Order Catalogues as a Guide to Popular 20<sup>th</sup>-Century Houses*, p. 72.
- <sup>144</sup> Dale Wolicki, "Historical Notes on Kit and Precut Homes" <http://www.elginarea.org/kithouse/>.
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- <sup>146</sup> Dale Wolicki, "Historical Notes on Kit and Precut Homes" <http://www.elginarea.org/kithouse/>.
- <sup>147</sup> Gordon-Van Tine Company, *117 House Designs of the Twenties*, p. 1, 6-7.
- <sup>148</sup> Dale Wolicki, "Historical Notes on Kit and Precut Homes" <http://www.elginarea.org/kithouse/>.
- <sup>149</sup> Robert Schweitzer and Michael W.R. Davis, *America's Favorite Homes: Mail-Order Catalogues as a Guide to Popular 20<sup>th</sup>-Century Houses*, p. 69.
- <sup>150</sup> Dale Wolicki, "Historical Notes on Kit and Precut Homes" <http://www.elginarea.org/kithouse/>.
- <sup>151</sup> Robert Schweitzer and Michael W.R. Davis, *America's Favorite Homes: Mail-Order Catalogues as a Guide to Popular 20<sup>th</sup>-Century Houses*, p. 69.
- <sup>152</sup> Rosemary Thorton, *The Houses that Sears Built*, p. 3.
- <sup>153</sup> Robert Schweitzer and Michael W.R. Davis, *America's Favorite Homes: Mail-Order Catalogues as a Guide to Popular 20<sup>th</sup>-Century Houses*, p. 20.
- <sup>154</sup> Dale Wolicki, "Historical Notes on Kit and Precut Homes" <http://www.elginarea.org/kithouse/>.
- <sup>155</sup> Rosemary Thorton, *The Houses that Sears Built*, p. 80-81.
- <sup>156</sup> Rosemary Thorton, *Finding the Houses that Sears Built*, p. 11.
- <sup>157</sup> Rosemary Thorton, *The Houses that Sears Built*, p. 91.
- <sup>158</sup> Interview with Jerry Cecil, Sears Kit House Historian. It is still possible to find precut houses constructed after 1940, but the peak period of kit house construction was in the 1920s.
- <sup>159</sup> Rosemary Thorton, *Finding the Houses that Sears Built*, p. 11.
- <sup>160</sup> Rosemary Thorton, *Finding the Houses that Sears Built*, p. 12.
- <sup>161</sup> Interview with Jerry Cecil, Sears Kit House Historian.



- <sup>162</sup> Rosemary Thorton, *Finding the Houses that Sears Built*, p. 8.
- <sup>163</sup> Companies like Sears and Wards offered catalogues with these items that could be purchased independently from a kit house.
- <sup>164</sup> Rosemary Thorton, *Finding the Houses that Sears Built*, p. 11.
- <sup>165</sup> Robert Schweitzer and Michael W.R. Davis, *America's Favorite Homes: Mail-Order Catalogues as a Guide to Popular 20<sup>th</sup>-Century Houses*, p. 63.
- <sup>166</sup> A.L. Carr, *A Practical Guide to Prefabricated Houses*, p. 6.
- <sup>167</sup> Raymond K. Graff, *The Prefabricated House*, p. 24.
- <sup>168</sup> Raymond K. Graff, *The Prefabricated House*, p. 54-55.
- <sup>169</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 63.
- <sup>170</sup> Raymond K. Graff, *The Prefabricated House*, p. 59-60.
- <sup>171</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 43.
- <sup>172</sup> Raymond K. Graff, *The Prefabricated House*, p. 25.
- <sup>173</sup> A.L. Carr, *A Practical Guide to Prefabricated Houses*, p. 6.
- <sup>174</sup> Randy Shipp, "Gunnison Houses: A Brief History," p. 2.
- <sup>175</sup> Thomas T. Fettes, *The Lustron Home: The History of a Postwar Prefabricated Housing Experiment*, p. 38.
- <sup>176</sup> O.W. McKenney, et. al, *Prefabs on Parade*, p. 62.
- <sup>177</sup> Thomas T. Fettes, *The Lustron Home: The History of a Postwar Prefabricated Housing Experiment*
- <sup>178</sup> Lustron Locator website, <http://home.earthlink.net/~ronusny/reg&phot.html/registry.html>.
- <sup>179</sup> Thomas T. Fettes, *The Lustron Home: The History of a Postwar Prefabricated Housing Experiment*, p. 67-69, 73.
- <sup>180</sup> Raymond K. Graff, *The Prefabricated House*, p. 82.
- <sup>181</sup> National Homes Corporation, *National Homes Collection of Distinguished Homes*, p. 1.
- <sup>182</sup> Baker Library Lehman Brother's Collection, "National Homes Corporation," [http://quincy.hbs.edu:8080/lehman/company\\_histories/n-o/companyHistory.html?companyName=National%20Homes%20Corporation](http://quincy.hbs.edu:8080/lehman/company_histories/n-o/companyHistory.html?companyName=National%20Homes%20Corporation).
- <sup>183</sup> Raymond K. Graff, *The Prefabricated House*, p. 82.
- <sup>184</sup> O.W. McKenney, *Prefabs on Parade*, p. 47.
- <sup>185</sup> Raymond K. Graff, *The Prefabricated House*, p. 86.
- <sup>186</sup> O.W. McKenney, *Prefabs on Parade*, p. 80 and "Homes of Steel and Aluminum for Veterans" p. 25-26.
- <sup>187</sup> Raymond K. Graff, *The Prefabricated House*, p. 34.
- <sup>188</sup> A.L. Carr, *A Practical Guide to Prefabricated Houses*, p. 9.
- <sup>189</sup> Alfred Bruce and Harold Sandbank, *A History of Prefabrication*, p. 59.
- <sup>190</sup> Burnham Kelly, *The Prefabrication of Houses*, p. 37-38.
- <sup>191</sup> Raymond K. Graff, *The Prefabricated House*, p. 35.
- <sup>192</sup> A.L. Carr, *A Practical Guide to Prefabricated Houses*, p. 6-7.